STANDARD OPERATION PROCEDURES

for developing

Department of the Army

Operational Architecture

(23 Jan 03)

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Preface

The purpose of this Standing Operation Procedure (SOP) document is to establish standards for the production of Army Enterprise Architecture Operational Architectural products. The consistent presentation of architectural product is important to the recipients of the information.

This SOP addresses All View (AV) and Operational View (OV) products. It will be used by all Army architecture analysts as a standardization guide for the production of Army Operational Architectural Products.

INTRODUCTION

As the Army transitions from Legacy through Interim to Objective Force and beyond, the process of quickly developing integrated, sophisticated and flexible systems and organizations is more important, as well as more complex. New operational concepts, technology and changing political environments are driving new concepts. This environment mandates the development of organizations, systems and functions that:

- Operate as part of a Joint/Combined structure;
- Are dependent upon reach-back for resources required for mission accomplishment;
- Are smaller, more self-sustaining, tailorable, lethal and easily deployable;
- Operate in a network-centric environment, thus connectivity and the ability to exchange information/intelligence is critical.
- Are capable of performing non-traditional missions.

The structure of organizations is what the Army and DoD refers to as “Architecture” and the architecture process is the procedure utilized to translate requirements and their subsequent concepts into organizations.

The magnitude of the architecture process is vast. It starts with the requirement for an Army unit to accomplish a mission. It may be a new type of mission for which no organization currently exists. It may be a new mission that only requires modifying an existing unit. Definition of the mission requirement, however, is the first step. From there, the subordinate tasks to accomplish that mission are determined (task decomposition), as are the purposes for those tasks. The analysis of the mission, tasks and purposes leads to the next step - the requirement to determine, as precisely as possible, every piece of information that is required to be passed within an organization as well as to external organizations. The type of communication (voice, video, data), how often, it’s sensitivity, security requirement, the distances involved – all these factors and more are utilized just to determine the communications systems required for an organization to accomplish its mission. Architecture, however, goes well beyond the command and control systems, as all they do is permit the flow of information. Architecture entails the determination of the size and makeup of organizations – numbers and specialties of soldiers, and the equipment they need – the detailed listing of manpower and materiel to accomplish the mission. Finally, and perhaps most critically, is that the architecture must be framed by overarching concepts – doctrine, and, in many cases, emerging doctrine.

There is no “Architect” MOS. Architecture is a process that encompasses the soldiers and civilians that determine the requirement exists, the proponent centers and schools that write the doctrine and determine personnel and equipment requirements, technical agencies that analyze requirements and translate them into systems, warfighters who validate proposed structures in the light of daily operations, and senior leaders who must reconcile Army, Joint and Combined, military and political, requirements with available resources.

Translating requirements into organizations and putting it into a warfighting/operational context is referred to by the Army as “operationalizing the architecture.” Operationalizing the

architecture is about warfighter requirements and enabling solutions. An architecture defines the structure of components, their relationships, and the principles and guidelines governing their design and evolution over time. Architecture development is linked to the Concepts/Capabilities Based Requirements System (CBRS) process, whereby concepts constitute the front end of any requirements definition process. Warfighters provide the requirements and operational concepts. Warfighter operational requirements defined by mission, task, and purpose (M-T-P) analysis, facilitates a common understanding of the central concept(s), and:

- Determine functions to achieve capabilities (Statement of Required Capabilities – SoRC)

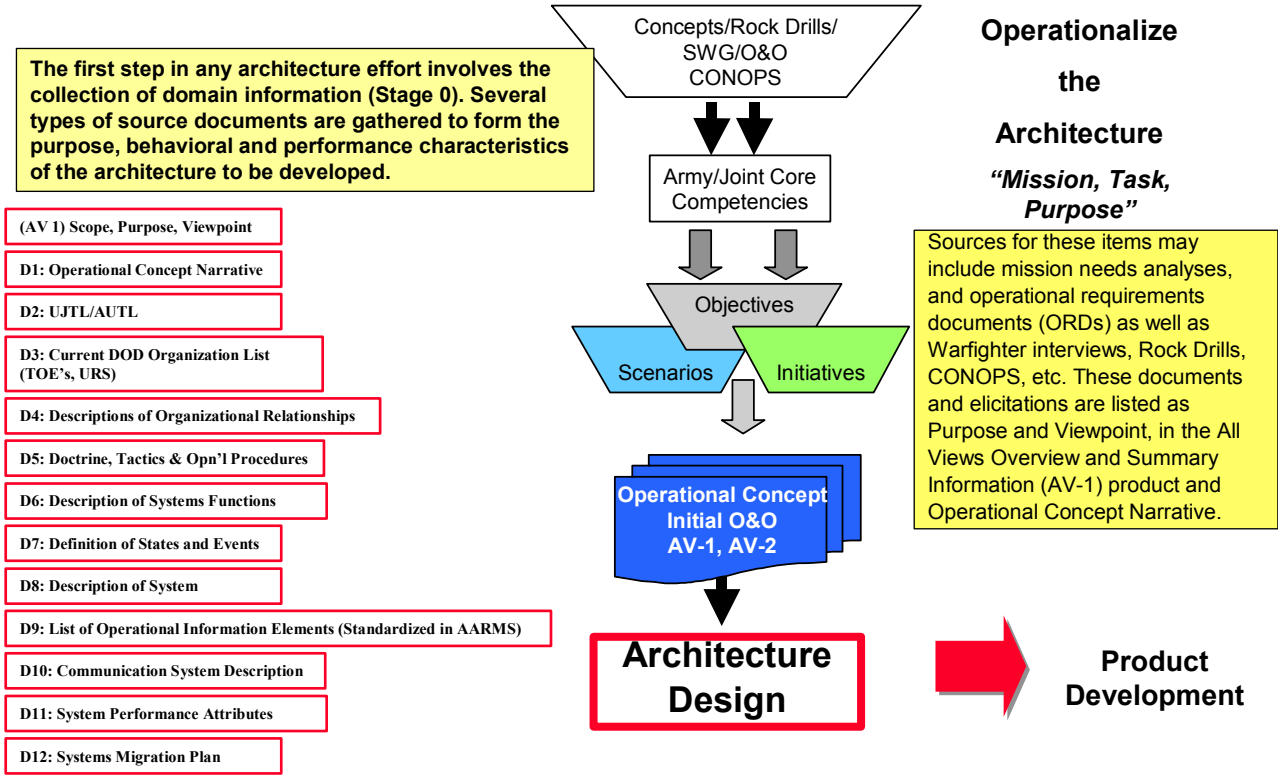
- Define tasks to accomplish functions

- Frame system(s) requirements

- Drive a capabilities empowered force structure

Warfighter requirements that define core critical roles and competencies -- the "What "of what a mission is to accomplish, the purposeful "Why," and the "How" of specific horizontal and vertical tasks that drive critical information requirements among operational nodes/elements -- permit translation of these details into systems/engineering language. In sum, traceable underpinnings operationalize the architecture and provide a basis for definable audit trails. These must be *iterative* at each development step of versioned architecture products. Consistency and trace-ability are key to ensuring that the fidelity of the warfighters' operational concept is maintained.

In operationalizing the architecture of any organization or function, and setting the initial stage for definitive OV products in particular, a useful depiction is found in the chart below. It constitutes a framework for organizing information, concepts, requirements, and doctrinal backdrops to ensure that the operational views of the various organizational elements and their supporting systems are fully appreciated.

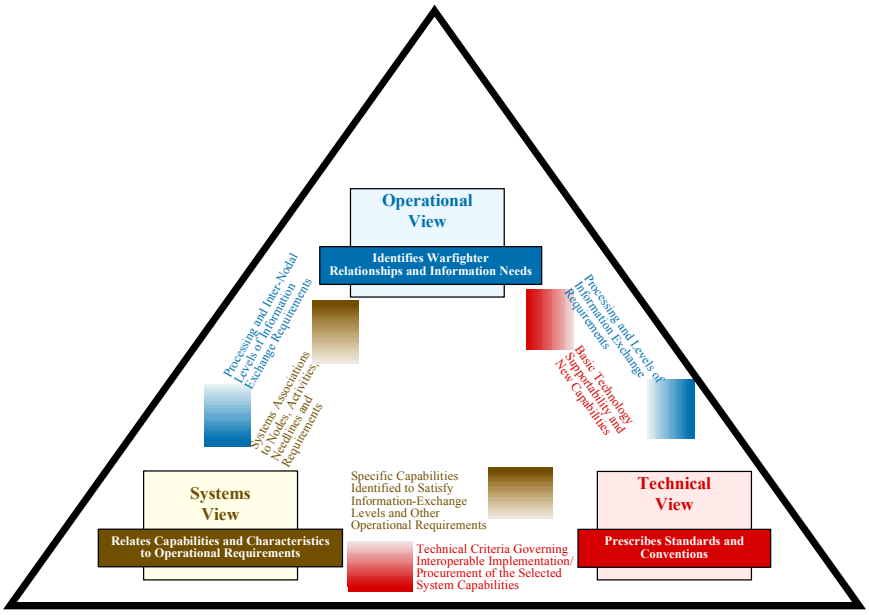


Proponent mastery of its own M-T-P, as well as those of the organizations it supports, is critical. This mastery extends to the requirement to update the AUTLs it has proponency for, and the ability to crosswalk the AUTLs with UJTLs. This capability is required for the development of architecture process, as it enables the various proponents to plug into structures under development. Vigilance and participation in Army and Joint concepts development is the foundation for proponent transformation.

The architecture development process is undergoing transformation as well. This SOP contains several changes, but is intended to be flexible enough to grow and keep up with changing concepts and procedures.

There are three views associated with any architecture – Operational, Systems and Technical, as illustrated in the figure below. Proponents play the critical role in the development of the operational view – translating the concept's requirements into missions, tasks and their purpose. In effect, M-T-P determination is a functional decomposition – the "What we do" to accomplish the concept. Systems Views are generally the responsibility of AIMD and PEO, which the Technical View is generally a CECOM function.

Architecture View Relationships



One Architecture – *Three Views*

There are three different types of architectures – organizational, systems and functional - and proponents will be involved in all three at one point or another. Organizational architectures are unit focused. This type of architecture is primarily associated with modernization of currently existing organizations, as in the application of digital enablers. The Unit Set Fielding process is an organizational architecture application. Medical Communications for Combat Casualty Care (MC4) is a systems architecture. It is the development of a new system that is being applied across the Army – in this case a management information system and its associated hardware. Finally, an architecture was developed for the way the Army conducts MEDEVAC, This development was a functional architecture. The architecture encompassed the entire process, from point of injury to ultimate disposition of the patient. As with such a broad area as architecture, there are architectures that are less clearly defined than others. The BCT architectures are organizational architectures in that they are existing units that will be modernized. At the same time, new concepts in the way this organization fights have both system and functional implications. The bottom line is that every architecture that is built will be somewhat different. Proponent products are required for each type, and will be quite similar. A major difference in architecture development, however, is what will be more commonly experienced in the near, short and long terms – that of developing architectures for units that do not currently exist – e.g. Objective Force. There will be different products that are required to be

produced for different types of architectures, and these will be identified in the Tasking Letter, which is distributed by the TRADOC Architecture integration Management Division (AIMD).

Purpose

The purpose of this document is to provide TRADOC proponents and others developing architectures requiring TRADOC validation, instructions on preparation of Army Information Technology (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance, (C4ISR) architecture products, and amplifying guidance to the DOD C4ISR Architecture Framework Guidelines (Version 2.0, 18 December 1997), to the Army Enterprise Architecture Development Plan (AEADP) and to the Army Enterprise Architecture Process Document (AEAPD).

The guidance is required to ensure the production of consistent architectures to support the C4ISR requirements of Unit Set Fielding and modernization. These products are essential to the overall development and subsequent architecture validation and approval processes. The fielding and implementation of the Army Architecture Repository Management System (AARMS) will necessitate limited changes to this SOP and will greatly facilitate OV architecture development and fielding.

Background

The operational architecture view includes the high level operational concept graphic and description that includes the organization's tasks and activities, operational nodes and elements, information exchange requirements between the operational nodes to include links to national assets and Home Station Support Nodes (HSSN), and identifies command relationships. It contains graphical and textual descriptions of the operational nodes and elements, assigned tasks and activities, and the information flows required between the nodes. It defines the type of information exchanged, the frequency of the exchange, the tasks and activities supported by the information exchanges and the nature of the information exchanges in sufficient detail to define specific interoperability requirements. The Operational View (OV) products are generally driven by doctrine. They are generally independent of organization, force structure and technology. Operational Architecture (OA) consists of several products, which, depending on the type of architecture, may or may not be required. The Tasking Letter, detailed below, will identify which products need to be produced, and by whom. Products include:

High Level Operational Concept Graphic	OV-1
Operational Node Connectivity Description	OV-2
Operational Information Exchange Diagram	OV-3
Command Relationship Chart	OV-4
Activity Model	OV-5
Operational Rules Model	OV-6a
Operational Start Transition Description	OV-6b
Operational Event /Trace Description	OV-6c
Logical Data Model	OV-7

Currently OV products are produced using MS PowerPoint, BPWin, Access, and the Army Architecture Repository and Management System (AARMS). Using AARMS, the process for creating the OV-2, 3 and 4 will be a process where data input is automatically linked from one OV product to another. For example the data input to create the OV-4 is used to build the OV-2, which is then used to build information exchanges and the OV-3. The introduction of AARMS will greatly enhance our current architecture development processes. However, do to presentation requirements, certain graphical products like the OV-1, OV-2 and OV-4 will require high-level graphical representation to depict concepts or ideas that pure data cannot portray. The use of MS PowerPoint slides for the production presentations e.g. briefing etc will continue. These graphic will be stored in the AARMS. Due to the requirement to brief architectures, and given the current graphics limitations of AARMS, the OV-2 and OV-4 will also be prepared in MS PowerPoint. These products will be stored in the OV-1 Section of the AARMS Respository. Future AARMS enhancements should eliminate the duplicate requirement.

General Instructions

The requirement to construct an architecture will be transmitted to proponents via a tasking letter, and it is accompanied by an AV-1 document. These documents are distributed by the AIMD, they detail the architecture products required, and are described below. It is important that proponents review these documents carefully and immediately address any issues with the AIMD.

Architectures are rarely independent. It is incumbent upon the architecture developers to determine not only communications connectivity requirements, but to coordinate concepts with other proponents and the combat developments community at large. Battle Labs, TRADOC Systme Managers (TSMs), Project Executive Officers (PEOs), Project Managers (PMs), and field units are sources of input.

An understanding of the operational concept is the key to development of a valid architecture. The exploration and definition of concepts, their translation into M-T-P – and ultimately organizations and systems, is the essence of the architecture development process.

Traceability is mandatory. Linkage will be established that enables an analyst to trace architecture product components from concept, to M-T-P, to AUTL/UJTL, to nodal connectivity, to Information Requirements (IRs) and to Information Exchange Requirements (IERs). The various architecture products must be linked and one should be able to crosswalk from one to the other – OV-1, 2, 3, and 4. For example, if a battalion is portrayed on the OV-1, it should be found on the OV-2, supported by IERS in the OV-3, and found in the OV-4 (with the exception of units not in the architecture).

A new requirement is to include “findings” in proponent architecture submissions. This is an important section, and is described in greater detail below.

Critical IERs. Increasingly complex mission requirements are driving the Army’s transformation. The transformation, in turn, is driving architecture development and the inherent requirement for more detailed analysis. As part of this analysis process, the identification of “critical” IERs is key as systems must be capable of transporting this information as a minimum. For example, an infantry battalion critical IER would be the call for fire. It’s submission of headcount for determining rations is not. The “Cost of Failure” code – “A” (Mission Failure) will be used to identify only critical IERs. Proponents must be judicious in selection of this code, as it will drive communications systems development decisions.

Approval process. At the proponent level, architecture submissions will be approved by the proponent DCD at a minimum, or the Proponent CG. A cover letter stating that the architecture has been approved and entered into the AARMS database/repository will be signed by the DCD or CG and will be sent to the Director, AIMD with a courtesy copy furnished to the Chief, AIMD Architecture Development Division. Validation and approval are discussed in more detail at the end of this SOP.

TRADOC Tasking Letter

The TRADOC Tasking Letter initiates the coordinated TRADOC effort in the architecture development process. The letter and attachments provides specific responsibilities, tasks, and roles for each TRADOC architectural element. It depicts required milestones for the architectural products, and specifies the products to be produced, by whom and when. An attachment provides the list of DA approved TO&Es that will be included in the architecture, as appropriate. The letter will also designate the approval authority for the architecture.

The Tasking Letter is prepared in DRAFT by the Architecture Development Division and includes the All-View-1 (AV-1) – see the following section – as an attachment. The draft is sent to the Director, AIMD, for review, approval and release. Distribution of the document is to each organization involved in the development of the architecture. In some cases, non-TRADOC organizations – such as AMEDD or SMDC – will be involved. Specifically, the Tasking Letter will be addressed to THE DCD/equivalent. In instances where multiple proponents are co-located, copies will be sent to each individual proponent as well as the director/equivalent of the consolidated organization.

For each architecture tasking a business rules memorandum will be developed by the Architecture Development Division and published by separate cover.

Overview and Summary Information

(AV-1)

The AV-1 provides specific information such as Identification, Purpose, Scope, Context, Findings, Tools and file formats for the intended architecture and is generally used as the TRADOC Tasking Letter. The AV-1 is based on the Army Enterprise Architecture Development Plan.

The AV-1 includes a “Findings” portion. The intent of this section is to provide an opportunity to address issues associated with the particular architecture under development. Examples of issues include: weaknesses in an architecture due to specific reasons, reliance on the part of the organization upon specific external resources, or the provision of information critical to those in the architecture review and approval process, that are key in understanding the proponent submission. During architecture development, unresolved issues of importance to the Army community may be identified, and the “Findings” section is the place to record them. A technique to consider is for the proponent to send its draft architecture products to POCs in field units for unofficial review and comment.

Integrated Dictionary
(AV-2)

The Integrated Dictionary as a minimum provides a core glossary of terms with definitions, and a list of acronyms used in C4ISR Architectural Products. The AV-2 is the central source for definitions of Army Architectural products. Architects should use standard DOD military terms where possible. The contents of the AV-2 are stored in the AARMS database in Core Architecture Data Model (CADM) format.

As a minimum, during the development of new architectures, proponents will review the AV-2 and submit additions, changes, or deletions to the AIMD-S along with its OV products. HQ, TRADOC, will review proposed changes. The AV-2 is also posted on the AIMD-S website and is updated by the Configuration Cell of the Architecture Division, AIMD-S.

Extract of the Acronym List:

A

A2C2S	Army Airborne Command and Control Systems
AADC	Area Air Defense Commander
AAE	Army Acquisition Executive

Extract of the Glossary:

Attribute	A property or characteristic.
Communications Medium	A means of data transmission.
Data	A representation of individual facts, concepts, or instructions in a manner suitable for communications, interpretations, or processing by humans or by automatic means (IEEE 610.12).

High-Level Operational Concept Graphic

OV-1

The OV-1 is a graphical representation of the high-level operational concept that drive's the high-level missions and functions of an organization. The intent is to provide the user with a general understanding of where the organization is located on the battlefield, related organizations, and what the unit does. Essential communications connectivity should be portrayed.

The development of the OV-1 must start with a clear understanding of the organization, mission, and/or system being portrayed. The architect must obtain the guidance from the DCD/equivalent as to how the organization will accomplish its mission, where it is located on the battlefield in relationship to the units it supports, its relationship to its higher headquarters and, at a high level, how it communicates. The document must not only be staffed within the proponent organization, but with appropriate other proponents. For example, FA may want to have IN and AR review their concept, as may CSS. Someone building a brigade may want to have CAC review their proposal to view it from a division or corps headquarters standpoint. Additionally, having an actual unit in the field review it unofficially is a great reality check. In some cases, the concept is simple, and an OV-1 can be generated in a matter of hours. Others may take much longer. The OV-1, however, is the foundation for the entire architecture construct, and should be referred back to as the other products are developed. Doctrine and concepts are continuously evolving, therefore the importance of ensuring the DCD/equivalent concurs with this product.

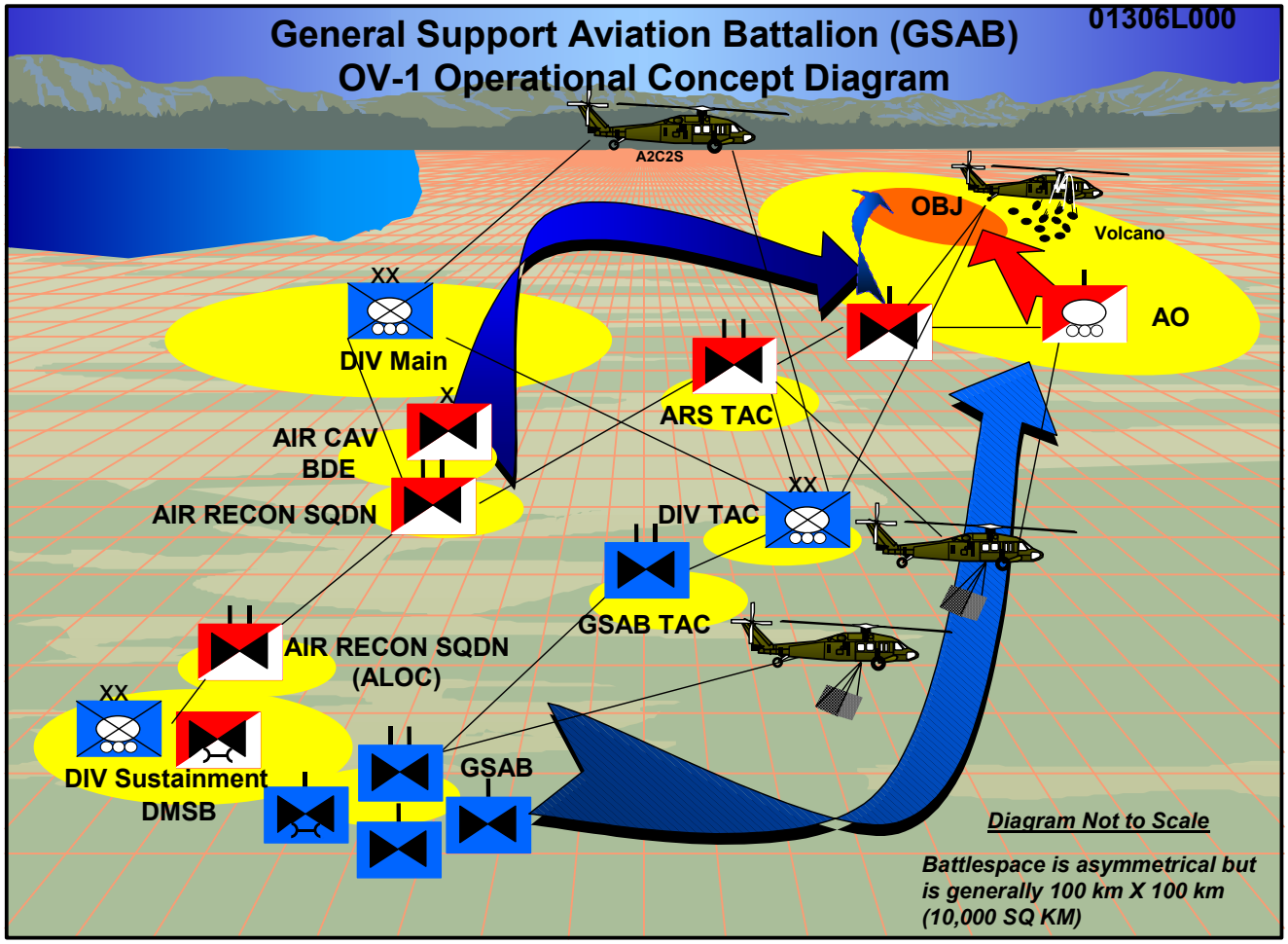
The OV-1 is prepared using Microsoft PowerPoint. It shows how the user plans to employ its available forces and assets on the battlefield to accomplish the mission. The OV-1 is a graphical representation of how the organization is dispersed across its battlespace and represents the distribution of its critical assets that support the operational concept as well as its high level mission(s). It also shows how the organization connects across Battlefield Operating Systems (BOSs) and external agencies that are critical to mission success. Standard military unit symbols from FM 101-5-1, text boxes and appropriate clipart represent the units/organizations involved. The diagram should not be so complex that it requires a detailed understanding of the organization to figure it out. The OV-1 is generally a one page document however as many pages as necessary may be used. The organization's M-T-P may be articulated on an additional slide to help portray the concept. The OV-1 should place the unit/function being templated in perspective. For example, if a section of the unit being templated normally locates with a higher headquarters, show the flag of that higher headquarters where it doctrinally is located and connect the flags. If the unit normally locates in a division rear area, show it there in the diagram. If the organization exists to support a specific unit, show the unit. If the organization depends on radars, satellites, UAV, or other specific equipment, they should be pictured. Critical assets should be represented on the diagram – e.g. a tank in an armored unit, a MEDEVAC helicopter in a MEDEVAC unit. The primary source documents are the TOE, existing operational concepts and appropriate doctrinal manuals, and the O&O document.

The OV-1 is used to identify operational issues, to identify functional information requirements, for IR development, and for development/validation of models and simulations. The primary users of the OV-1 include combat developers, the test and evaluation community, the modeling and simulation community, the systems architects and the warfighter. The OV-1 is also a critical component of the documentation presented to the members of the Architecture Validation Board (AVB).

The OV-1 should be prepared in Arial font with font size no smaller than 10. The background and as a minimum each OV-1 must include the following:

- Slide Title with unit/function identification to include TOE number
- Graphical depiction of Mission, Tasks, and Purpose
- Critical assets
- Defined Battlespace (in KM when possible)
- High-Level Operations
- Geographic Distribution (unit locations)
- Organic units need to stand out from other units
- Organizational Data (name, purpose, echelon, etc). Units to be depicted include the subject unit (to include two levels down), the unit's higher headquarters and any other unit(s) required to provide the reader a proper perspective of the unit. For example, the diagram for the CSS Squadron of an ACR would show the other squadrons in the regiment (which drive locations) and well as the regimental headquarters.
- Follow on slide containing a short textual discription of the M-T-P. As you develop the M-T-P keep in mind the users and uses of OV-1 products.

In some cases, an organization is just too complex for the reader to gain an appreciation/understanding of the concept. In cases such as this, a one or two page explanation of the concept is acceptable.



Example of High-Level Operational Concept Graphic OV-1

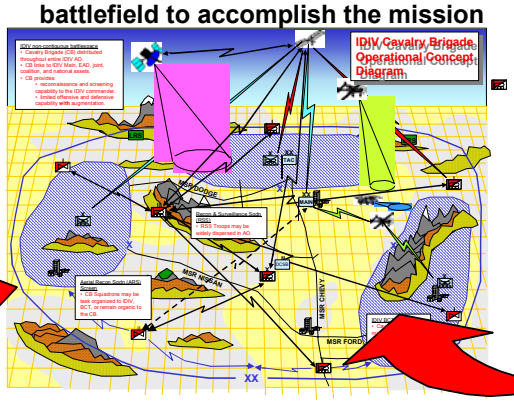
The following slide depicts the uses and users of OV products.

Operational Concept & Graphic (OV-1)

Shows how user plans to employ available forces & assets on the battlefield to accomplish the mission

EXISTING OPERATIONAL CONCEPTS

DOCTRINE



- NEW ORGANIZATIONS
- NEW CAPABILITIES
- NEW SYSTEMS
- NEW THREATS

USES	USERS
OPERATIONAL ISSUE IDENTIFICATION	COMBAT DEVELOPER (DTLOMS)
IDENTIFICATION OF FUNCTIONAL INFORMATION REQUIREMENTS	TEST & EVALUATION COMMUNITY
IER DEVELOPMENT	MODELING & SIMULATION COMMUNITY
DEVELOPMENT/VALIDATION OF MODELS & SIMULATIONS	WARFIGHTER
	SYSTEMS ARCHITECT

Example of High-Level Operational Concept Graphic OV-1

CORPS MI BRIGADE

• **Mission:** to conduct intelligence and electronic warfare (IEW) operations in support of the corps and its assigned and attached units.

• **Tasks/Capabilities:**

- Command and control of assigned and attached military intelligence units and elements
- Integrate all source intelligence, analysis, production and dissemination.
- Collection, technical management, and analysis of Army, other services, and national level SIGINT (ELINT & COMINT),CI/HUMINT and IMINT.
- Signals intelligence (SIGINT) data base for the corps
- Combat intelligence: air and ground based SIGINT collection, HUMINT, including Long Range Surveillance, IMINT for both aerial surveillance and reconnaissance, and document exploitation.
- Counterintelligence (CI) investigations and operations
- Electronic warfare
- Battlefield deception planning
- Interrogation of POWs
- Provides intelligence communications support to split-based operations with dedicated Intel satellite communications.

• **Purpose:** The MI Brigade is part of the Corps's intelligence operating system that provides the relevant information about the threat, *COP,* and the environment that the corps commander and his subordinates need to plan and execute battles, engagements and other missions across the full spectrum of operations (FM 34-25**)**

Example of Mission/Task/Purpose Slide

Operational Node Connectivity Description

OV-2

The OV-2 is a graphical depiction of operational elements (in this instance, nodes) that exchange information directly with each other. It depicts the nodes, elements and the needlines between them. It is developed based on information derived from supporting architecture requirements document references. Think of it as a logical extension of the OV-1. In order to accomplish the mission, the organization must communicate with both internal and external organizations. Take a company, for example. Internally, the company commander gives direction to the platoon leaders and the headquarters. Externally, the company talks to higher headquarters, supported and supporting organizations, and perhaps others. All the OV-2 identifies is a requirement to exchange information with another organization. The architect needs to ensure that the internal elements are identified as well as who the external elements are that the organization needs to communicate with to accomplish the mission. Again, discussing this with subject matter experts in the DCD/equivalent will assist greatly in with the requirement.

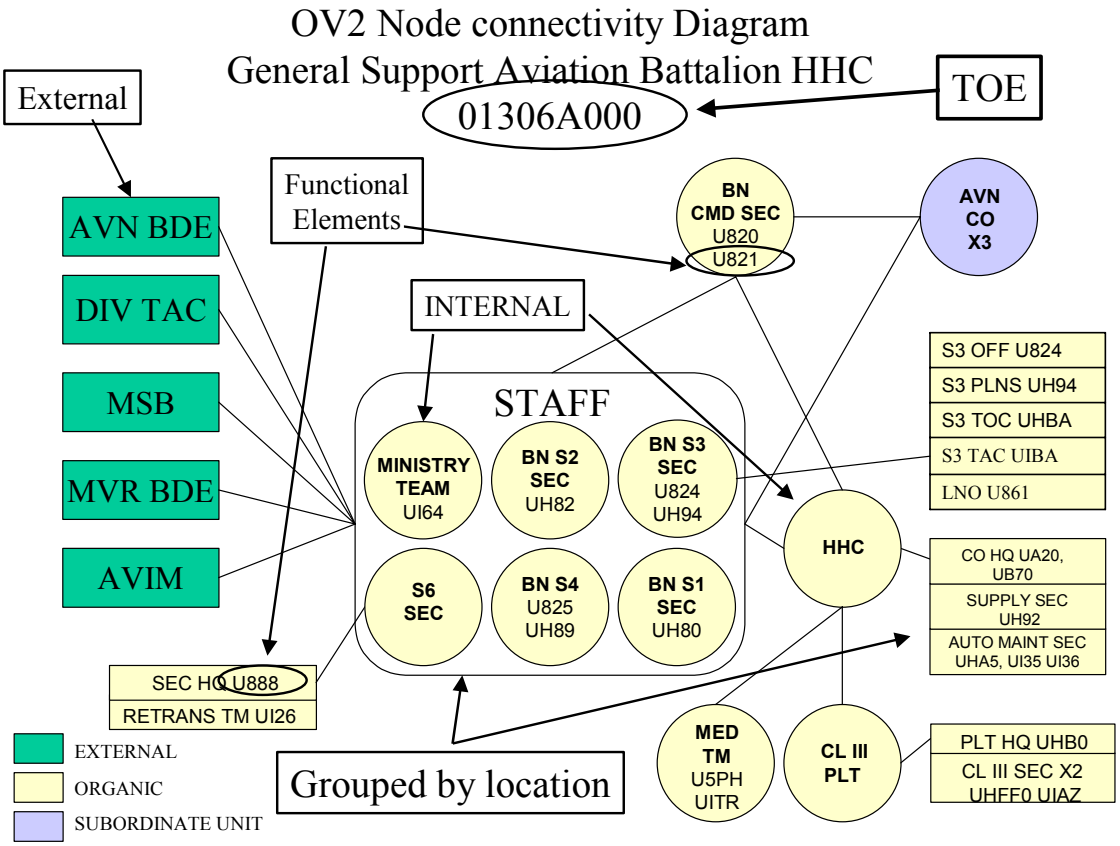
The OV-2 focuses first on the nodes, and secondly on the IRs between the nodes. It illustrates internal and external node connectivity. It also depicts the need for information transfer between nodes, and may depict a rollup of multiple individual information exchanges. It does not depict how or over what means the information is exchanged; the OV-3 will satisfy this requirement. Functional Elements and TOEs are listed on this document, with the Functional Elements annotated adjacent to or within the node. Not all nodes or Operational Elements, which require connectivity will have Functional Elements associated with them i.e., a node may exist with out assigned C4 equipment yet the node still requires connectivity and should be illustrated on the OV-2. There are two types of connectivity that must be documented – internal and external. Both can be shown on the same diagram, using different colors to represent each type, or can be shown on separate diagrams. Note that when choosing colors, when the product is printed in black and white it may lose its ability to be differentiated, thus when using color, consider a format that will be clear in black and white. It is preferred that they be shown on the same slide, but if the diagram becomes too complex, then a separate slide is required. Internal connectivity links nodes within the organization that is being portrayed. External connectivity shows specific and/or general nodes that the organization would communicate with.

An external node is defined as those nodes that are not strictly within the scope of the subject architecture, but represent important sources of information For example: An engineer battalion that is part of an engineer brigade would show external connectivity with EN BDE HQ. It would also link to the other battalions in the brigade, supported units, supporting units and perhaps others. Where no Functional Elements exist, create them. For example, in the creation of an architecture, if a new position/requirement is identified, and no Functional Element or OPFAC rule currently exists, a new one must be created. OPFAC rules are developed over time, but must be present on the architecture when forwarded for approval. External connectivity is as important as internal, as every unit supports or is supported by others particularly in a network centric environment. Emerging concepts reflect critical dependencies on external organizations. Examples include: linkages among artillery, Army and Joint aviation assets, intelligence and air defense for effects synchronization; and linkages among maneuver and

sustainment units during non-contiguous operations. The decision as to which external organizations to list is somewhat subjective, however the intent is to show organizations that are critical to unit success. For example, an infantry battalion would list the DS artillery battalion, the FSB, aviation brigade, ALO, and adjacent units. An MI organization may list any number of links to joint, combined and national level assets. External organizations can be shown as individual nodes or in a box. A representation of external linkages should be shown on the OV-1.

As a minimum each OV-2 must include the following:

- Slide Title with unit/function identification to include the TOE number
- Operation Nodes (individual and/or composites)
- Needlines
- Functional elements/OPFACs where they exist.
- Characteristics of the Information Exchange (as required)



Example of Node to Node Connectivity Description OV-2

The OV-2 will be prepared in both AARMS and PowePoint, the latter for board presentation purposes. When preparing it in PowePoint, it should be prepared in Arial font with font size no smaller than10 and contain only standard Army abbreviations.

In some cases, the architecture will show units that are OPCON, TACON or Attached. These nodes will be connected with dashed lines.

The primary source documents are the TOE, O&O documents, OV-1, OV-4 and appropriate doctrinal manuals. Functional Elements must be included on the diagram. Too many nodes and need lines on one OV-2 significantly reduce the diagram's utility. Techniques to simplify the diagram may include using multiple slides or boxes to show location, see figure X. The OV-2 is the basis for IER development, planning for systems tests and the development of models and simulations. The OV-2s are also utilized by the Architecture Validation Board (AVB) to gain insights on high-level information needs between operational nodes/elements. The OV-2 is

currently constructed using MS PowerPoint the implementation of AARMS will significantly simplify this process.

Operational Information Exchange Matrix (OIEM)

OV-3

The OV-3 describes in detail the IERs that are derived from each of the needlines in the OV-2. While OV-3 IERs, in general, are focused on supporting warfighter information requirements, a more thoughtful approach warrants appreciating the nuances of the O&O concepts that underpin an organization, system or function and its C4ISR enablers. The force structure of tomorrow is one where organizations are increasingly dependent upon external resources, thus IERs associated with Reach-Back, Joint connectivity, COP and Commander's Information Requirements deserve special attention. We will operate in a commander/information centric environment, thus communications connectivity is one of the foundations of mission success.

IERs express the relationship across the three basic entities of an operational architecture (activities, operational nodes, and information flow) with a focus on the specific aspects of the information flow. IERs identify *who* exchanges *what* information with *whom, why* the information is necessary, and what specific information exchange parameters (i.e., speed of service, cost of failure) must be accounted for by the communications system connecting the operational nodes.

The specific attributes included in the OV-3 are dependent on the objectives of the specific architecture, but may include the identification of each IER's information media (e.g., data, voice, and video), quality (e.g., frequency, timeliness, and security), and quantity (e.g., volume and speed) requirements. Particular capabilities such as security level of communications may also be captured for each exchange.

At a minimum the Information Exchange Matrix (IEM) will contain the following fields: Producer, Producer Title, Producer Function Code (UJTL/ AUTL code), Producer Function, Consumer, Consumer Title, Consumer Function Code (UJTL/AUTL code), Consumer Function, Information Requirement, Communications Characteristic (voice or data), Frequency (the number of times sent in a period), Period (number of hours used in the frequency), Precedence, Message Security Classification, Cost Of Failure, Perishibility (how long the information is valid), and Speed Of Service(allowable delay in delivery).

The OV-3 will be built using the AARMS OV-3 Module. The OV-3 Module will open to the **Operational Information Exchange Diagram** Editor. For detailed directions on the use of the OV-3 Module refer to the Create Operational Information Exchange Matrix chapter of the current AARMS Training Manual.

Terms and definitions used in the OPERATIONAL INFORMATION EXCHANGE MATRIX (OIEM) OV-3:

The Operational elements are the forces, organizations, or administrative structures that participate in accomplishing tasks and missions. I.e. The person, team, or section receiving INPUT, performing the mission or task, or providing an OUTPUT. E.g. Operational elements are commanders, S2/S3 sections, S4s, etc.

Producer OPFAC. The OPFAC rule identifier associated with the producer. OPFAC rule identifiers are in the AARMS database.

Producer (Title). The name of the producer of the information requirement. The operational element (within or outside the unit) producing the IRs. Often, information produced at another location is sent to the unit staff. Other personnel or sections may help develop the IRs; however, only the operational element *principally responsible* for producing IRs is represented in the matrix.

Producer Function. Tasks, missions, activities performed by a particular operational element. Tasks are associated with the producers of information.

Consumer OPFAC. The OPFAC rule identifier associated with the consumer. OPFAC rule identifiers are in the AARMS database.

Consumer (Title). The responsible operational element that consumes the IRs in performing its duty.

Consumer Function. Tasks, missions, activities performed by a particular operational element. Tasks are associated with the consumers of information.

Information requirements (IRs). Information required by or generated by an operational element. E.g. IRs are commander's guidance, various reports, and calls for fire, doctrine, SOPs, etc.

Communications characteristics. The manner in which IRs are exchanged between the producer and the consumer. The same information can be exchanged by a number of methods. Where there is more than one entry, the order of listing does not imply a ranking for implementation. The following codes indicate the most desirable method of displaying the IR. The communications characteristics codes follow:

C—Courier/Manual/Hardcopy	P—POS/NAV
D—Data	R—Record Traffic/DMS
F—Facsimile	S—Still Frame/Imagery
L—Live Video/Face to Face	V—Voice

Frequency. Indicates how often the operational element needs the IR. The required frequency of IRs may be determined by SOP, higher headquarters direction, doctrine, or other sources, such as the consumer.

The frequency codes follow:

10000—As required #___, or a number indicating the number of times the information is exchanged in 24 hours (for example, .25 represents once every 4 days, .50 represents once every 2 days, 1 represents once a day, 2 represents once every 12 hours, 3 represents once every 8 hours, etc.).

Period. The frame of time (in seconds, minutes, or hours) that the content of the information (message) is relevant.

0—> 8 hours	6—1-10 minutes

1—4-8 hours
2—3-4 hours
3—2-3 hours
4—1-2 hours
5—10-60 minutes
7—25-59 seconds
8—11-24 seconds
9—5-10 seconds
A—1-4 seconds
B—<1 second

Precedence. The priority normally associated with the IR, particularly messages. The precedence codes follow:

R—Routine
P—Priority
O—Immediate
Y—Flash override
Z—Flash

Security Classification/Caveated Security Classification. The normal military classification for the IR *at the time the information is produced*. The security classifications are as follows:

NO CLASSIFICATION
UNCLASSIFIED
UNCLASSIFIED SENSITIVE
FOR OFFICAL USE ONLY
CONFIDENTIAL
CONFIDENTIAL NO FOREIGN
CONFIDENTIAL (SI)
CONFIDENTIAL RESTRICTED
NATO UNCLASSIFIED
NATO CONFIDENTIAL
NATO CONFIDENTIAL ATOMAL
NATO RESTRICTED
NATO SECRET
NATO SECRET ATOMAL
NATO TOP SECRET
NATO TOP SECRET ATOMAL
SECRET/NO FOREIGN
SECRET, SECRET (SI)
SECRET RESTRICTED
TOP SECRET
TOP SECRET (SI)

TOP SECRET (SI-TK)

SCI/TOP SECRET

Cost of failure. Indicates what might happen should the consumer not receive the information in the time required, often a judgment call. While failure to receive routine information might result in mission failure, this is not generally the case. The cost of failure codes follow:

A—Mission failure
B—Task failure
C—Loss of life
D—Minimal impact
X—Not known

Perishability. The period of time (in seconds, minutes, or hours) when the information is most useful. *This code should indicate the point in time at which the information is no longer significant to the consumer*. The perishability codes follow:

A—> 8 hours
B—4-8 hours
C—3-4 hours
D—2-3 hours
E—1-2 hours
F—10-60 minutes
G—1-10 minutes
H—25-59 seconds
J—11-24 seconds
K—5-10 seconds
L—1-4 seconds
M—<1 second

Speed of service. The acceptable time period (in seconds, minutes, or hours) between sending and receiving the report. The codes indicate the consumer's consideration of *adequate* or *desirable response time.* The speed of service codes follow:

0—> 8 hours
1—4-8 hours
2—3-4 hours
3—2-3 hours
4—1-2 hours
5—10-60 minutes
6—1-10 minutes
7—25-59 seconds
8—11-24 seconds
9—5-10 seconds
A—1-4 seconds
B—<1 second

Broadcast code. This code is used if an IR is broadcast to its consumers. Valid codes are 1=True and 2=False.

Multicast code. This code is used if an IR is sent to a specific list of consumers. Valid codes are 1=True and 2=False.

Acknowledgement code. This code is used if an IR must be acknowledged that the consumer received it. Valid codes are 1=True and 2=False.

OV-3: Operational Information Exchange Matrix

Producer				Consumer				Information Requirement	Comm Char	Frequency	Period	Precedence	Msg Sec Class	Cost Of Failure	Perishability	Speed Of Service
OPFAC	Title	Function Code	Function	OPFAC	Title	Function Code	Function									
A06405A0	CHAPLAIN/UMT	ART6.8	PROVIDE RELIGIOUS SUPPORT	UH801HU0	AVN BN/SQDN S1 SECTION (AOE)	ART6.8	PROVIDE RELIGIOUS SUPPORT	GENERAL TEXT MESSAGE	V	2	24	R	S	B	0	0
A06405A0	CHAPLAIN/UMT	ART6.8	PROVIDE RELIGIOUS SUPPORT	UH801HU0	AVN BN/SQDN S1 SECTION (AOE)	ART6.8	PROVIDE RELIGIOUS SUPPORT	PERSONNEL STATUS RPT	V	1	24	R	S	B	0	0
A06408A0	CHAPLAIN/UMT	ART6.8	PROVIDE RELIGIOUS SUPPORT	UH801HU0	AVN BN/SQDN S1 SECTION (AOE)	ART6.8	PROVIDE RELIGIOUS SUPPORT	GENERAL TEXT MESSAGE	V	2	24	R	U	B	0	0
A06408A0	CHAPLAIN/UMT	ART6.8	PROVIDE RELIGIOUS SUPPORT	UH801HU0	AVN BN/SQDN S1 SECTION (AOE)	ART6.8	PROVIDE RELIGIOUS SUPPORT	PERSONNEL STATUS RPT	V	1	24	R	U	B	0	0
A52005A8	SEP AR BDE/RGT CDR (TRK)	ART7.6	EXECUTE TACTICAL OPERATIONS	U82008U0	AVN BN/SQDN CDR/VEHICLE (AOE)	ART7.6	EXECUTE TACTICAL OPERATIONS	OPER TASK NUCLEAR	V	1	24	R	S	B	3	7
A52015A8	SEP AR BDE/RGT CDR (WHL)	ART7.6	EXECUTE TACTICAL OPERATIONS	U82008U0	AVN BN/SQDN CDR/VEHICLE (AOE)	ART7.6	EXECUTE TACTICAL OPERATIONS	GENERAL TEXT MESSAGE	V	2	24	R	S	B	0	4
A52055A0	AR BDE CDR-BCV-FXXI	ART7.6	EXECUTE TACTICAL OPERATIONS	U82008U0	AVN BN/SQDN CDR/VEHICLE (AOE)	ART7.6	EXECUTE TACTICAL OPERATIONS	GENERAL TEXT MESSAGE	V	2	24	R	S	B	0	4
A52065A0	CDR WHEEL - FORCE XXI	ART7.6	EXECUTE TACTICAL OPERATIONS	U82008U0	AVN BN/SQDN CDR/VEHICLE (AOE)	ART7.6	EXECUTE TACTICAL OPERATIONS	GENERAL TEXT MESSAGE	V	2	24	R	S	B	0	4
A52125A4	CAV RGT XO (WHL)	ART7.6	EXECUTE TACTICAL OPERATIONS	U82008U0	AVN BN/SQDN CDR/VEHICLE (AOE)	ART7.6	EXECUTE TACTICAL OPERATIONS	GENERAL TEXT MESSAGE	V	2	24	R	S	B	0	4
A52505A8	SEP AR BDE/CAV RGT S4 OFF	ART7.4.2	INTEGRATE REQUIREMENTS AND CAPABILITIES	U82508U0	BN/SQDN S4 OFFICER'S VEHICLE (AOE)	ART7.4.2	INTEGRATE REQUIREMENTS AND CAPABILITIES	ADMIN/LOG ORDER	V	1	24	R	S	D	0	3
A52505A8	SEP AR BDE/CAV RGT S4 OFF	ART7.4.2	INTEGRATE REQUIREMENTS AND CAPABILITIES	U82508U0	BN/SQDN S4 OFFICER'S VEHICLE (AOE)	ART7.4.2	INTEGRATE REQUIREMENTS AND CAPABILITIES	PRIORITY OF ISSUE	V	1	24	R	S	B	0	0
A52525A0	S4 OFFICER - FORCE XXI	ART7.4.2	INTEGRATE REQUIREMENTS AND CAPABILITIES	U82508U0	BN/SQDN S4 OFFICER'S VEHICLE (AOE)	ART7.4.2	INTEGRATE REQUIREMENTS AND CAPABILITIES	PRIORITY OF ISSUE	V	1	24	R	S	B	0	0
A58005A8	SEP AR BDE/CAV RGT S1 SEC	ART6.6.1.2	PERFORM REPLACEMENT MANAGEMENT	UH801HU0	AVN BN/SQDN S1 SECTION (AOE)	ART6.6.1.2	PERFORM REPLACEMENT MANAGEMENT	PERSONNEL STATUS RPT	V	1	24	R	S	B	0	0
A58005A8	SEP AR BDE/CAV RGT S1 SEC	ART6.14	CONDUCT CIVIL-MILITARY OPERATIONS (CMO) IN AREA OF OPERATIONS	UH801HU0	AVN BN/SQDN S1 SECTION (AOE)	ART6.14	CONDUCT CIVIL-MILITARY OPERATIONS (CMO) IN AREA OF OPERATIONS	GENERAL TEXT MESSAGE	V	2	24	R	S	B	0	0

Example of Operational Information Exchange Matrix OV-3

Command Relationships Chart

OV-4

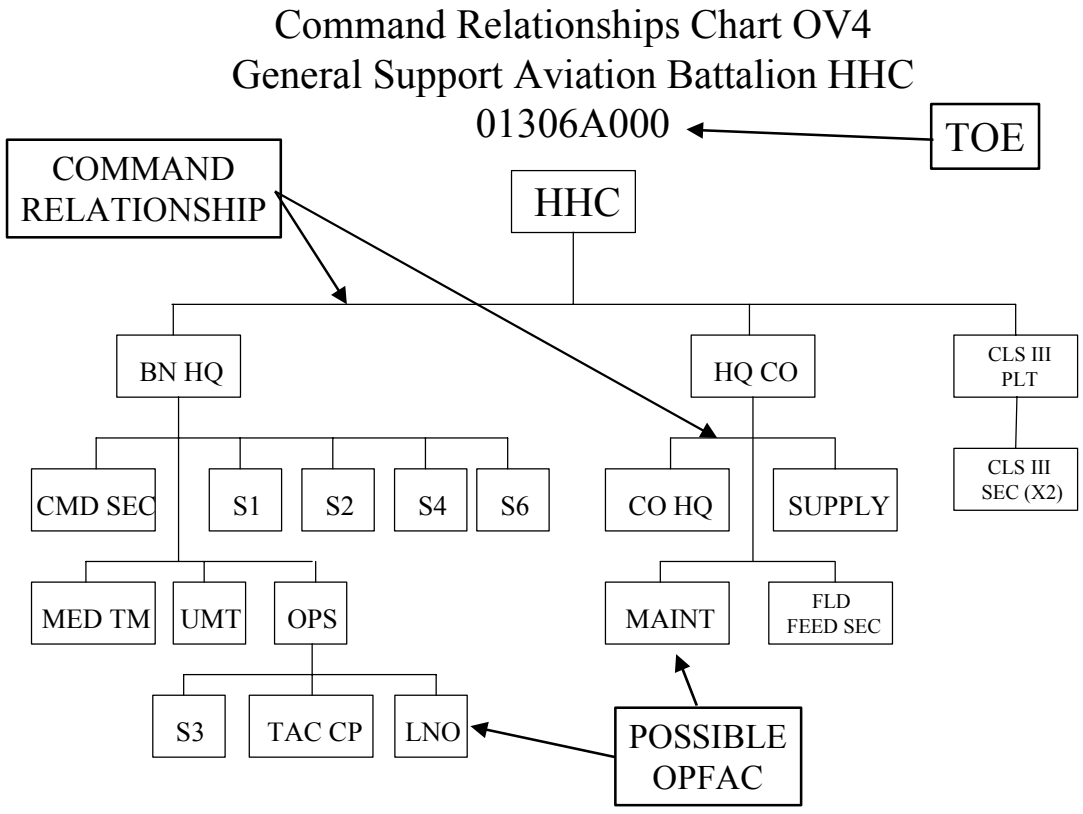
The Command Relationship Chart illustrates the relationships among organizations or resources in an architecture. These relationships can include command and control relationships, coordination relationships (which influence what connectivity is needed), fundamental roles and many others depending on the purpose of the architecture. It is important that these relationships are demonstrated in an operational view of an architecture as they illustrate fundamental roles and management relationships. Differing command relationships may mean that different units perform activities differently. Different coordination relationships may mean that connectivity requirements are changed. The OV-4 is developed based on information derived from supporting architecture requirement document references (ORD, CRD, etc.) and drives the creation of the Functional Element. Army doctrine and the TOE are the primary sources of information for existing organizations. The OV-4 chart may be accompanied by a written narrative if it is required to explain a certain aspect or aspects of the organizational structure that are not readily apparent/non-doctrinal. The OV-4 is used by the warfighter, combat developers, the modeling and simulation community and systems architects. It is for organizational design/redesign, nodal connectivity determination, the development/validation of models and simulations and is used to plan system tests. Additionally, the OV-4 is also a critical component of the documentation presented to the members of the Architecture Validation Board.

When you think about it, the OV-4 is a fairly easy concept, and flows from the OV-1. Once you have an operational concept and the M-T-P, the next logical step is to figure out what type of organization is required to accomplish these M-T-P. Someone is always in charge, so they're at the top. A headquarters or command section or commander……depends on the organization. A "top" implies something underneath it……usually the activities that accomplish the mission. Using the company analogue….the company has a headquarters section or platoon that takes care of the administrative functions, and platoons to accomplish the operational mission. Some organizations are simple – a platoon or section – with something like a corps at the opposite end of the spectrum. But……they follow the same construct…..superior and subordinate relationships. Sometimes there are other types of relationships, like OPCON, that will need to be displayed…but those are the exception and must be clearly defined.

As a minimum each OV-4 must include the following:

- Standard Army Graphics (FM 101-5-1)
- Standard Army Abbreviations/Acronyms
- Organizational Hierarchies (essentially the same units depicted in the OV-1)
- Command and Coordination Lines
- Functional Elements in the blocks - where they exist.

The OV-4 will identify organizations down to the paragraph level – generally sections and teams.



Example of Command Relationships Chart OV-4

The OV-4 will be prepared in AARMS and PowerPoint, the latter for presentation purposes. When preparing it in PowerPoint, it will be produced in Arial font with font size no smaller than 10 using only standard Army abbreviations.

In the case of an architecture that addresses other than TOE organizations – for example a task-organized unit in a deployment or a functional architecture – command relationships may vary. Units can be OPCON, TACON or Attached. In the first twp cases, the lines connecting the organizations will be dashed with the relationship spelled out in parenthesis. Attached units will be connected with a solid line with “Attached” in parenthesis.

Activity Model
OV-5

Activity Modeling is a graphical and textural representation that describes the applicable activities associated with an architecture, the data and/or information exchanged between activities, and the data and/or information exchanged with other activities that are outside the scope of the model (i.e. external exchanges.

Activity modeling in reality is an extract of Integration Definition (IDEF) techniques. These modeling techniques are a series modeling standards governed by Federal Information Processing Standards Publications (FIPS)183. They are widely used in government and commercial sectors to model various enterprises and application domains.

The FIPS publications Number 183, 93 Dec 21, *" Describes the IDEF0 modeling language (semantics and syntax), and associated rules and techniques, for developing structured graphical representations of a system or enterprise. Use of this standard permits the construction of models comprising system functions (activities, actions, processes, operations), functional relationships, and data (information or objects) that support systems integration".*

INTEGRATION DEFINITION FOR FUNCTION MODELING (IDEF0) is a modeling technique/method that supports the graphical description of business functions as a set of interrelated activities and the information or resources required for each activity. IDEF0 is used to produce a function model, activity model, or process model. The OV-5 model is a structured graphical and textual description/representation of the functions, activities or processes within the modeled system or subject area. You can use an IDEF0 model for documenting and re-structuring functions for better efficiency and effectiveness. The IDEFO modeling process captures activities performed in the process and their Inputs, Controls, Outputs, and Mechanisms (ICOMs). Modeling can assist in the evaluating costs associated with activities in reference to Measures of Effectiveness (MOE) and Measures of Performance (MOP).

Completed IDEFO models show the relationship between the activities and the information they use or produce. BP*win*® and Popkin® are two commercial application software products that are used to produce IDEFO products. The BP*win*® modeling system is most frequently utilized, and is being tested with other AARMS applications.

Benefits Derived from IDEFO Models

IDEF models are beneficial because they—

- Use a structured approach to establish understanding and the basis of systems integration.
- Are easy to use within multiple disciplines.
- Create a common language within an organization.

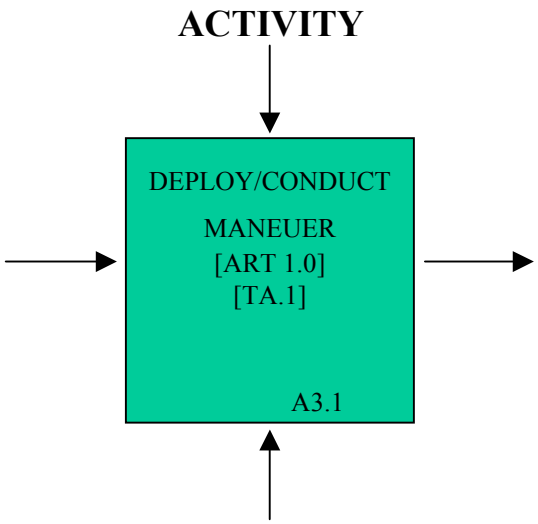
- Serve as a basis to apply activity-based costing (ABC) and cost benefits analysis (CBA).
- Provide a framework for the scoped operation and the path for process change.
- Serve as a basis for making design decisions.
- Provide understanding associated with communication functions and their associated links.
- Promote common understanding among diverse disciplines.

The requirement for a proponent to develop an OV-5 is architecture-dependent, and is more closely associated with the development of new organizations or functions. We no longer solely depend on activity modeling as a source for IERs. It is of tremendous value in working through the task decomposition process and as a vehicle to verify connectivity. The requirement to develop an OV-5 will be stated in the TRADOC Tasking Letter, however any organization can use modeling for its own internal use.

Note: Don't reinvent the wheel. In the on-line OA Library are a number of activity models that can be used, to include one for BCT-1. Products in the OA Library are in the BP*win*® format. These models can be used in the creation of other products.

There are several aspects of the modeling process to keep in mind:

1. Activities are represented by a rectangular box and labeled using an active verb or verb phrase.
2. Activity descriptions should include, in brackets, the AUTL and UJTL task numbers. This will enable trace ability through the Army and Joint architecture development and management process. The "Node Title" is an AUTL/UJTL task and the "Number" is the task number. This emphasizes the requirement for proponents to keep their AUTLs current.

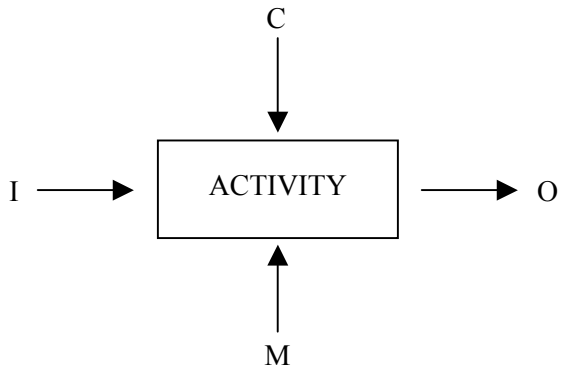


Example of Activity with AUTL Task

ICOM

ICOM is the acronym for the Inputs, Controls, Outputs, and Mechanisms of an activity. The ICOMs they are represented by arrows ( ) and they illustrates the relationship between activities, The ICOMs have four possible roles relative to an activity:

- **I**nput – data or material used to produce an output.
- **C**ontrol – data that constrains or regulates the activity.
- **O**utput – data or materials produced by the activity.
- **M**echanism – people, machines, or systems that perform the activity.

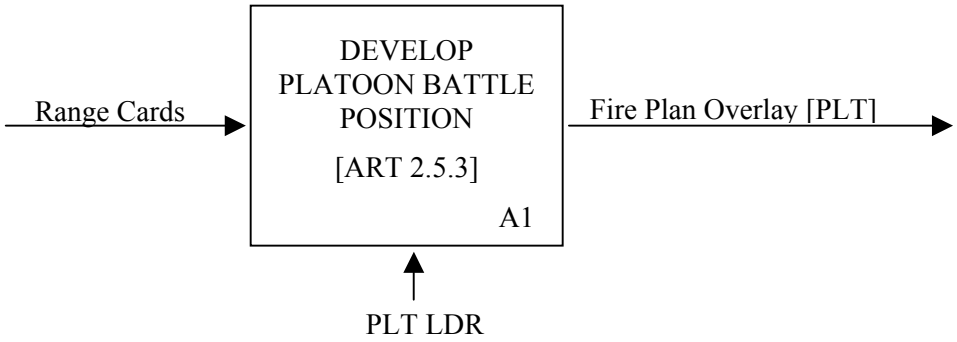


Example of an Activity showing ICOM locations.

Arrows connect activities and are named with a noun or noun phrase. Placement of arrows between activities is very important because the arrow establishes the node-to-node connectivity among activities. For example an output from one activity may be required to initiate an action within a subordinate activity. To show the connectivity association of activities, ICOM arrows must connect the activities. Specific arrow types are explained later in this section.

Note: BP*win*® is designed for control arrows to depict the data that constrains or regulates the activities, however, in order to simplify the modeling process, we normally do not utilize controls when we develop the models. The following example illustrates the placement of ICOM arrows in relation to the activity.

The following figure illustrates how this applies to the activity “DEVELOP PLATOON BATTLE POSITION.” The Range Cards are the inputs, and the Fire Plan Overlay is the output or result of the activity, the platoon leader represents the mechanism.



Example of Activity with Named (Coded) Arrows

Three different types of diagrams are used in OV-5 Activity Models to portray activities:

- **Context**
- **Decomposition**
- **Node trees**

Context Diagram

Context diagrams show the single activity representing the model at its highest level.

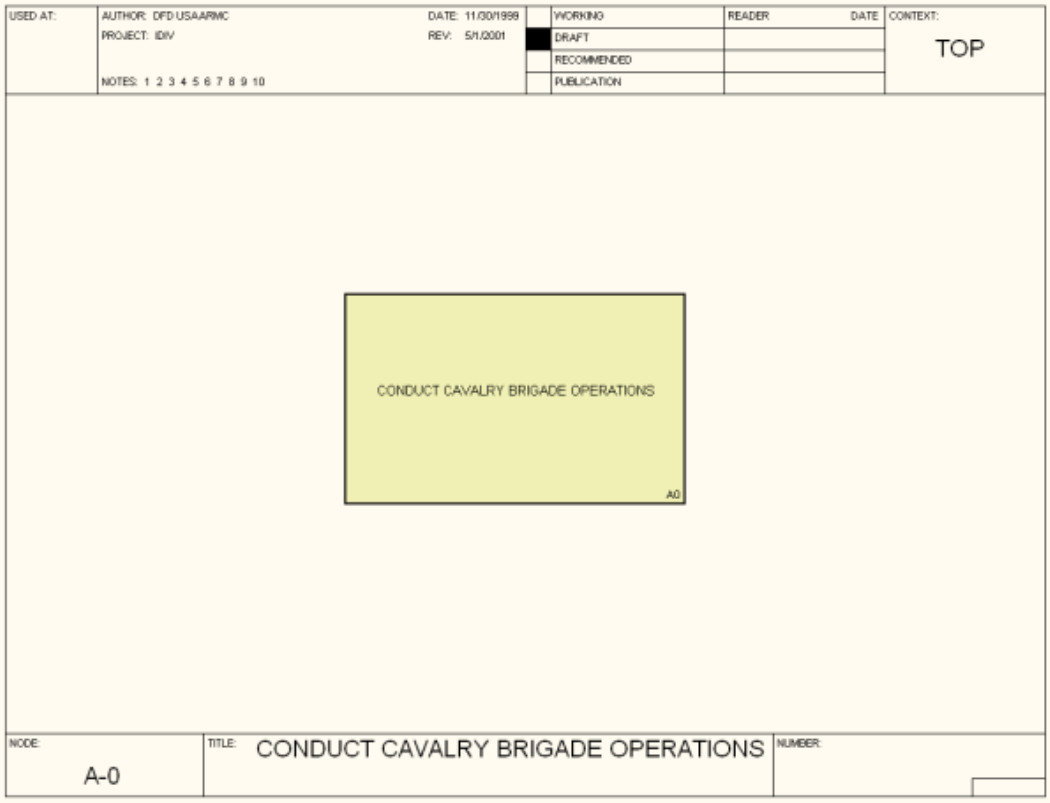
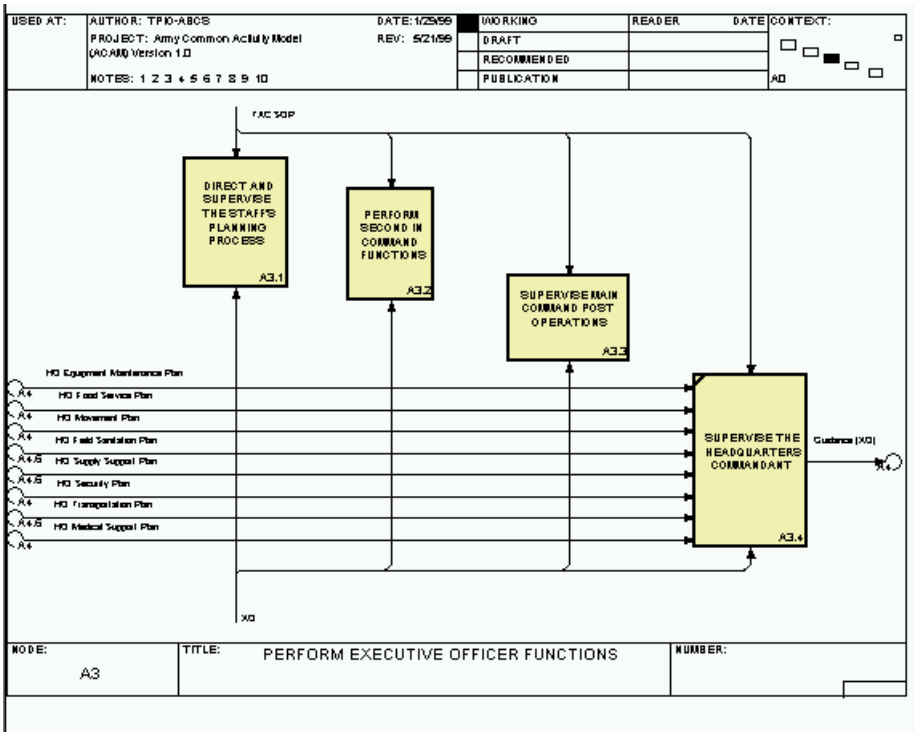


Illustration of Top-Level Context Diagram

Once the top-level activity box is established, it is decomposed or broken down into additional diagrams showing each major functional component of the activity. These are then broken down or decomposed into more detailed diagrams down to a level that allows understanding of the particular activity.



Example of Context Model (Activity Model) with multipliable activities.

The Top-Level Context Diagram and subsequent subordinate activity diagrams through their hierarchical relationship is the basis of the Activity Model Node Tree Diagram. In the following diagram the Top-Level Context Diagram (A0) is decomposed down to lower levels (A2.1 and A2.2). The Node Tree Diagram in the center illustrates the hierarchical path of the decomposition of the activity that is being modeled.

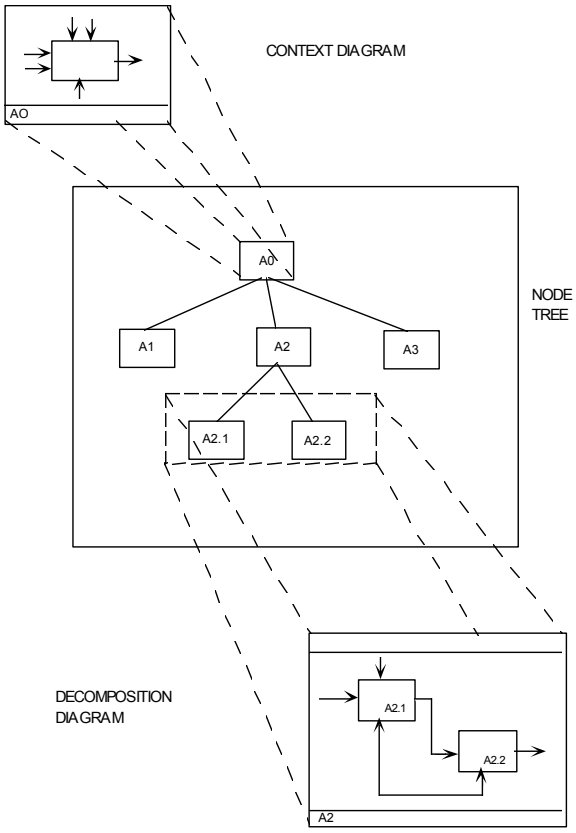


Illustration of Diagram Relationship Tree

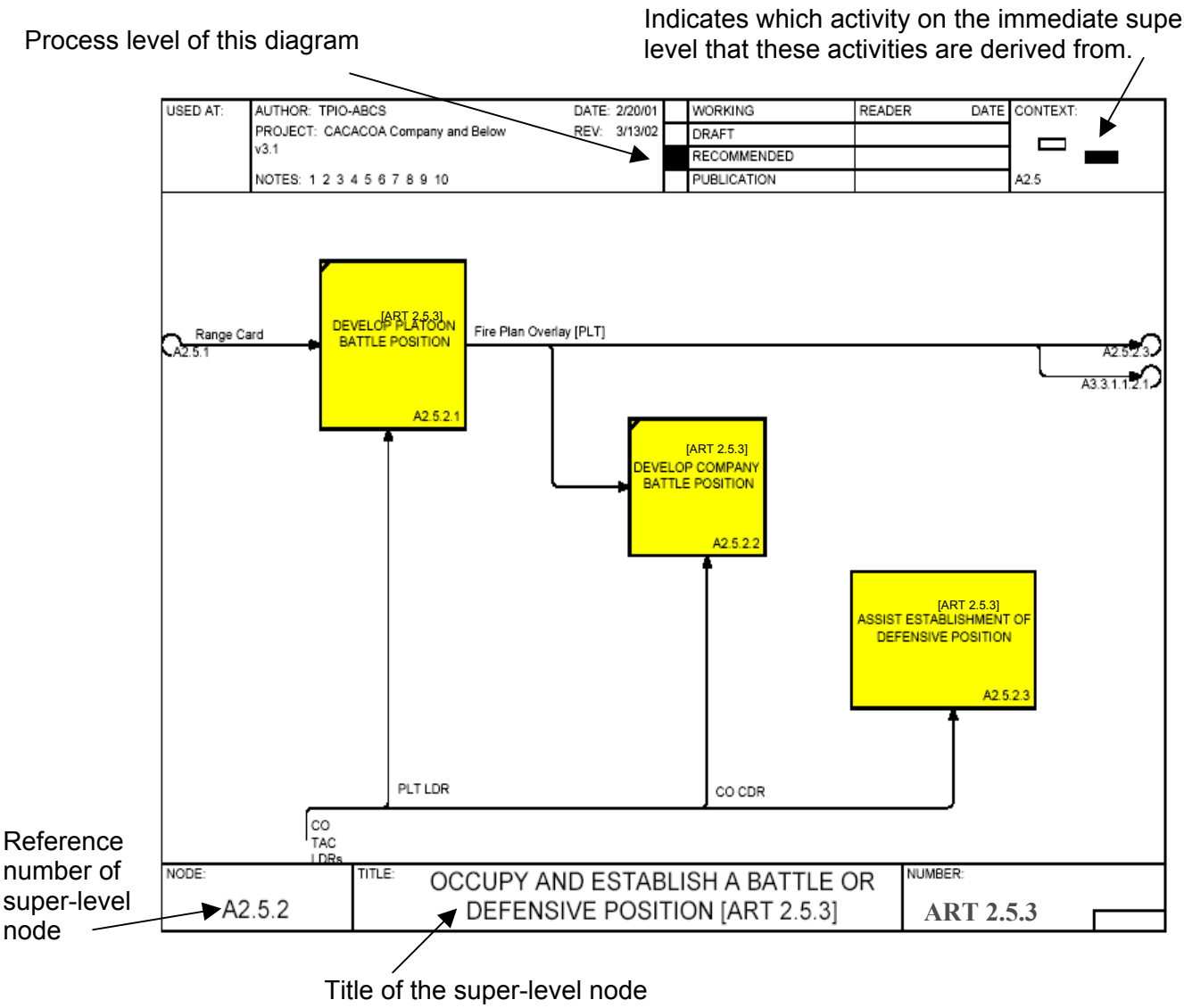
Decomposition Diagram

Decomposition diagrams represent refinements of an activity by showing its lower level activities.

Decompositions are used in business modeling to break an activity into its constituent parts. Each activity can in turn be decomposed into its own constituent activities. The level of decomposition detail for each activity is entirely up to you, however the decomposition should be down to the lowest appropriate level without excessive layers of decomposition or the inclusion of extraneous information.

Pictured below is a typical decomposition diagram in this model. The arrows highlight the information that aids in understanding the relationship of this particular diagram to associated levels in the decomposition.

Figure 10 - Example of Decomposition Diagram



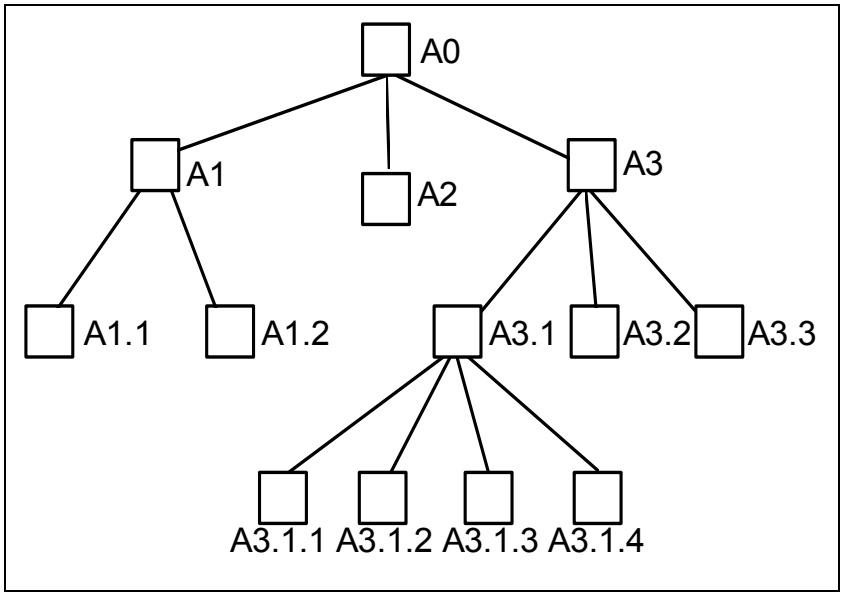
NOTE: The title of the super-level node is the ART of the Higher-level activity.

Node Tree Diagram

Node Tree Diagrams graphically portray activities in a hierarchical format.

Node Tree diagrams show all parent-child activity relationships in a single easy-to-view diagram. A Node Tree diagram uses a traditional tree hierarchy where the top node (box) corresponds to the context diagram activity, and lower level nodes correspond to child decompositions.

The Node tree pictured below shows activities and their decomposition relationships on a single structured diagram. Each node represents an activity. Each line from one activity to the next lower level sub-activity represents a decomposition relationship. ICOMs are not shown on node trees.



Example of Node Tree (BP*win*® Design)

Applying the new procedure to the **Node Tree** figure, an example would be:

A0 – DEPLOY/CONDUCT MANEUVER (ART 1.0) (TA.1).

A1 – PERFORM TACTICAL ACTIONS WITH FORCE PROJECTION AND DEPLOYMENT (ART 1.1) (TA.1.1)

A2 – CONDUCT TACTICAL MISSIONS (ART 1.2) (TA.1.2)

A3 – CONDUCT MOBILITY OPERATIONS (ART 1.3) (TA.1.3)

A1.1 – CONDUCT MOBILIZATION OF TACTICAL UNITS (ART 1.1.1) (TA.1.1.1)

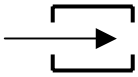
A1.2 – CONDUCT TACTICAL DEPLOYMENT/REDEPLOYMENT (ART 1.1.2)

Etc.

This section has been a brief discussion of modeling. A more detailed discussion refer to the "Operational Architecture Process and Product Guide", section 6, dated April 2002, produced for TPIO-ABCS.

ARROWS. When an arrow does not continue throughout the model, it is tunneled. Tunnels are shown by round (sideways parentheses) or square (sideways brackets) around either the arrowhead or the line at its origin. When tunneled at the arrowhead, it stops at that activity and does not appear in any decomposition. When tunneled at the arrow origin, it does not appear or originate from any higher-level activities in the model.

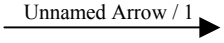
When you draw an arrow to a diagram border in a Business Process (Activity) decomposition diagram, BP*win*® creates a square arrow tunnel.



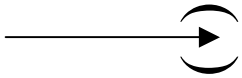
Likewise, if you delete an activity or border arrow in a Business Process decomposition diagram, the arrow in the parent diagram becomes a square tunnel. A square tunnel on an arrow stub indicates that the arrow is unresolved within the model hierarchy (there is no representation of the arrow in any other diagram in the model).

To maintain the integrity of your model, you can resolve all square tunnels in any of the following ways:

Resolve the square tunnel to a border arrow. You can resolve the square tunnel to a border arrow so that the arrow becomes part of the model hierarchy. When you resolve the square tunnel to a border arrow, the arrow automatically displays in parent diagrams and decomposition diagrams where appropriate. If you do not name the arrow, BP*win*® automatically assigns a name and a sequential number to the arrow.



Resolve the square tunnel with a round tunnel. You can resolve an arrow with a round tunnel to confirm that you want to leave the arrow unresolved in the model hierarchy.



You can always decide later to change the round tunnel and include it in the model hierarchy.

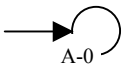
An external reference is a location, entity, person, or department that is a source or destination of data but is outside the scope of a diagram. An external reference can be internal to an organization, such as "Supply" or outside it.

Create an external reference. You can resolve a square or round tunnel by creating an external reference. You can use an external reference in a Business Process diagram to serve as a representation for an object inside or outside of the model.

In Business Process Diagrams (IDEF0) and Data Flow Diagrams (DFD), you can draw an arrow to activities on separate diagrams in the same model by using off-page references. You create an off-page reference from a round or square border tunnel. BP*win*® adds the off-page reference in the source and destination diagrams and appears as a named circle at the end of a border arrow.

You can label an off-page reference with the source or destination diagram name, C-number, or node number. You can also double-click an off-page reference in a model to jump to the destination reference in another diagram in the same model.

Create an off-page reference. You can resolve a square tunnel or a round tunnel by creating an off-page reference to reference another diagram in the model. You can use an off-page reference to go to the referenced diagram by double-clicking the off-page reference or by choosing Go To Reference on the Off-Page Reference shortcut menu.



Operational Activity Sequence and Timing Description

(OV-6)

There are three types of OV-6 Operational Activity Sequence and Timing Description products. They are as follows:

Operational Rules Model (OV-6a)

Operational State Transition Description (OV-6b)

Operational Event/Trace Description (OV-6c)

Many critical characteristics of an architecture are only discovered when an architecture's dynamic behaviors are defined and described. The dynamic behavior referred to here concerns the timing and sequencing of events that capture operational behavior of a task.

The Operational State Transition Description and the Operational Event/Trace Description may be used separately of together to describe critical timing and sequencing behavior in the operational view.

The Operational State Transition Description and the Operational Event/Trace Description describe the business-process responses of events. Events may be referred to as inputs, transactions, triggers, call for fire, etc. When an event occurs, the action to be taken may be subject to a rule of set of rules as described in the Operational Rules Model.

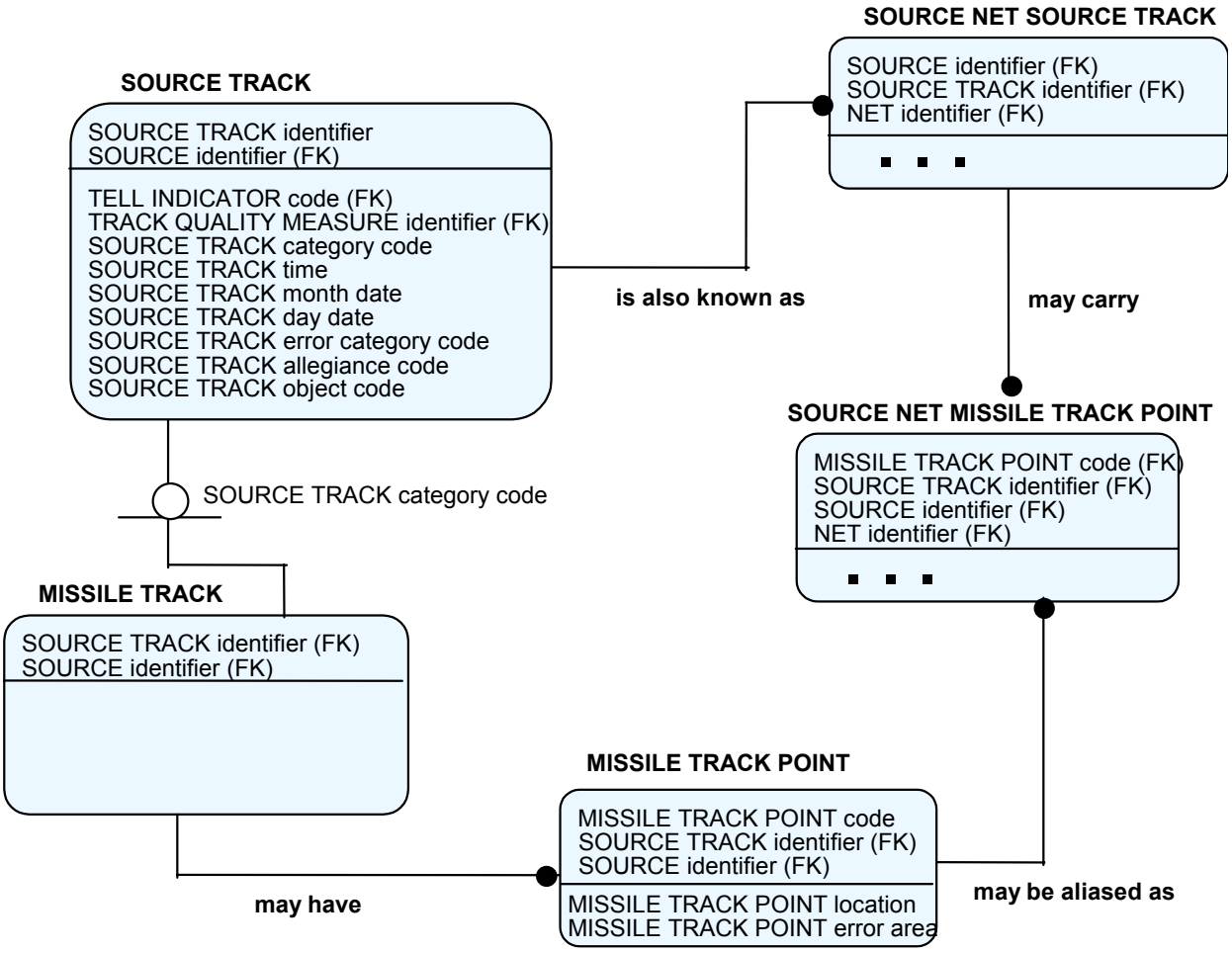
Examples of OV-6a, OV-6b and OV-6c follow.

Operational Rules Model

OV-6a

The Operational Rules Model OV-6a is part of the architecture's operational view and extends the capture of business requirements. Rules statements are used to describe, define or constrain some operational activity sequence and timing. The model identifies the business rules that affect some operational aspect of the enterprise. This is a presentation of the Terms, Entities and the relationship of aspects within the database.

The ARCADM compliant list of attributes and terms will be updated in Appendix A of the DOD C4ISR Framework Document. The OV-6a product is not normally a required architectural product. An example of section of an OV-6a follows:



Example of OV-6a: BDM Active Defense Example Employing a Logical Data Model.

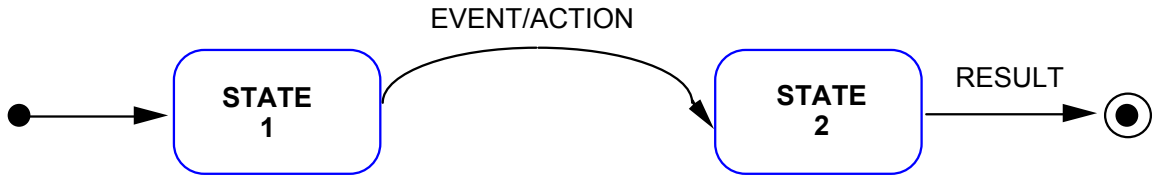
Refer to the DOD C4ISR Framework Document for more information.

Operational State Transition Description

OV-6b

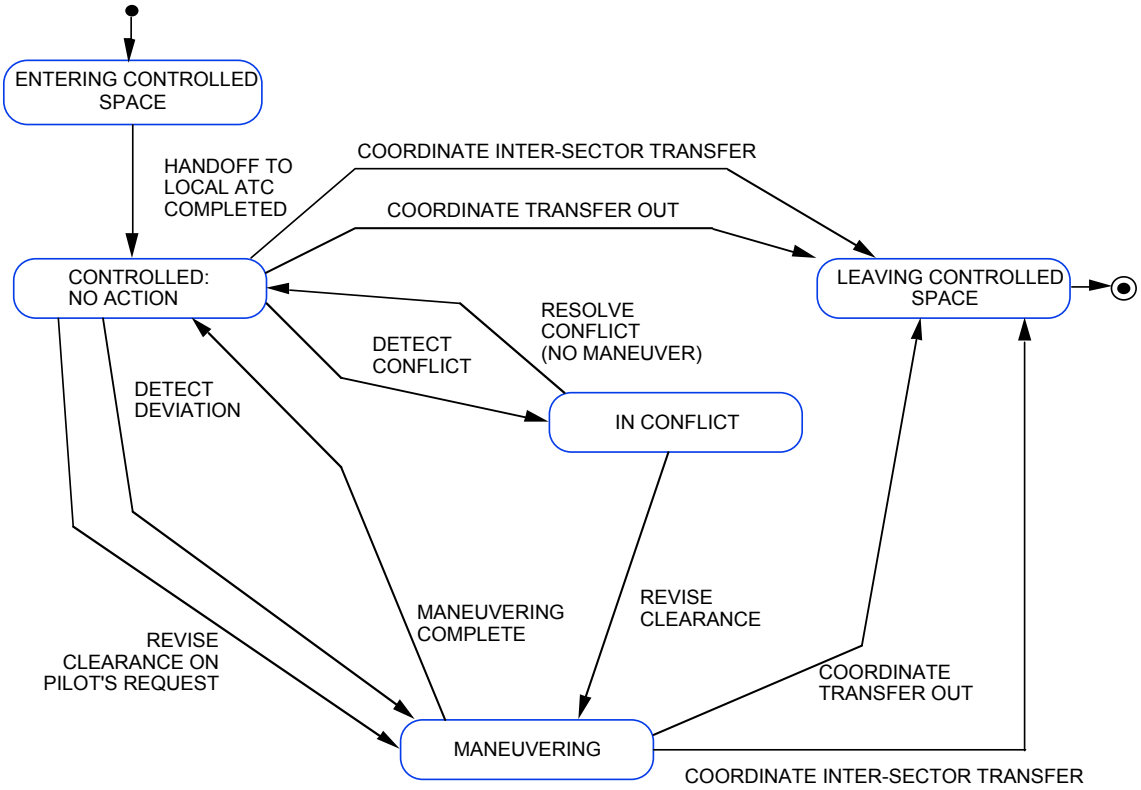
The Operational State Transition Description specifies a stated response of a system or business process to events. The response may vary depending on the current state and the rule set or conditions. The Operational State Transition Description relates events and states. When an event occurs, the next state depends on the current state as well as the event. A change of state is called a transition. Actions may be associated with a given state or with the transition between states. For example, Operational State Transition Descriptions can be used to describe the detailed sequencing of activities or work flow in the business process. This explicit time sequencing of activities in response to external and internal events is not fully expressed in the Activity Model. The Operational State Transition Description captures this information at the business process level.

Figure 4-20 provides a template for a simple Operational State Transition Description. Initial states (usually one per diagram) are pointed to by the black dot and incoming arrow while terminal states are identified by an outgoing arrow pointing to a black dot with a circle around it. States are indicated by rounded corner box icons and labeled by name or number and, optionally, any actions associated with that state. Transitions between states are indicated by directed lines (i.e., one-way arrows) labeled with the event that causes the transition and the action associated with the transition.



Example: Operational State Transition Description (OV-6b) -- High-Level Template

The figure illustrates a simple form of Operational State Transition Description for Air Traffic Operations.



Example: Operational State Transition Description (OV-6b)

Air Traffic Operations

For activities at the business process level, the Operational State Transition Description captures the states, their names, descriptions, and types (e.g., simple, concurrent superstate), and any actions associated with the states, as well as the transitions, their labels, associated triggering events and resultant actions. Integrated Dictionary attributes derived from this product are under development and describe box types (e.g., state name, description, associated action) and various transition types (e.g., simple, splitting, synchronizing). See appendix A of the DOD C4ISR Framework Document for a more complete attribute listing with corresponding example values and explanations. The OV-6b product is not normally a required architectural product.

Operational Event/Trace Description (Mission Thread)

OV-6c

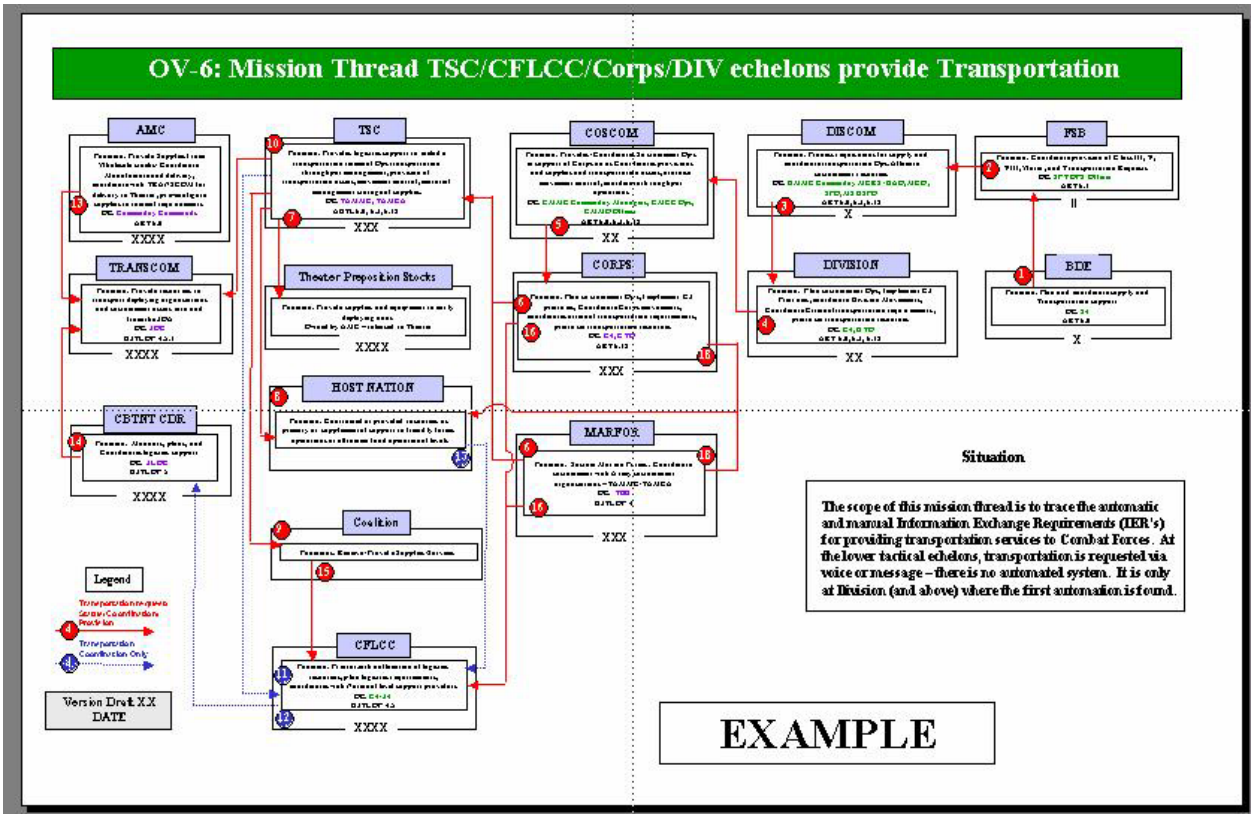
Mission threads are a relatively new architecture tool, used to examine connectivity among the component organizations involved in a process. The intent of the thread is to trace a particular action from origin to final destination. For example, it may be a request for supplies, originating in a unit, flowing through various processing organizations and ending up at Army Logistics Command (Formerly AMC). It could represent an ADA alert to an incoming rocket…..from detection, to notification of all relevant headquarters and operational units. It is analogous to task decomposition done in activity modeling.

Threads can be used for multiple purposes. They can be used: as the foundation for exercise play, such as in Millennium Challenge '02, where the Army was interested in testing certain processes; to assess the ability to communicate among various organizations, as with the current Battle Command Interoperability Assessment; in the development of totally new organizations, as in the development of the Unit of Action – Maneuver; or to examine connectivity requirements of existing organizations. The complexity and importance of the thread may vary, from the routine function of ordering Class 9, to the critical – such as transmitting a down-wind message.

The purpose being served by the mission thread will determine the staffing and approval levels required. The more important the issue being examined, the more staffing required and the higher the level of approval. For example, a mission thread that concerns air defense would probably be staffed by the air defense proponent with the aviation proponent, as well as the joint community.

The selection of mission threads is done by the headquarters conducting the exercise or directing the architecture development. The threads are developed by architects in specific functional areas. Threads are block and arrow diagrams, are constructed in MS Powerpoint, and are accompanied by a narrative that is keyed to the thread. The blocks identify organizations, the activity taking place in the organizations, and are further identified by the UJTL and AUTL that describes the activity.

While it is possible to develop IERs based on mission threads, the utility of these IERs must be kept in perspective. Mission Threads are a tool for performing an analysis based on critical mission requirements. It is likely that the bulk of the IERs required by an organization to complete a mission or missions would not be captured using this technique, thus the complete organizational requirement for systems would not be captured.



Example: Operational Event/Trace Description (OV-6c)

Logical Data Model

(OV-7)

Extract from the DOD C4ISR Framework Document

The Logical Data Model (LDM) is used to document the data requirements and structural business process rules of the architecture's operational view. It describes the data and information that is associated with the information exchanges of the architecture, within the scope and to the level of detail required for the purposes of the architecture. Included are information items and/or data elements, their attributes or characteristics, and their interrelationships.

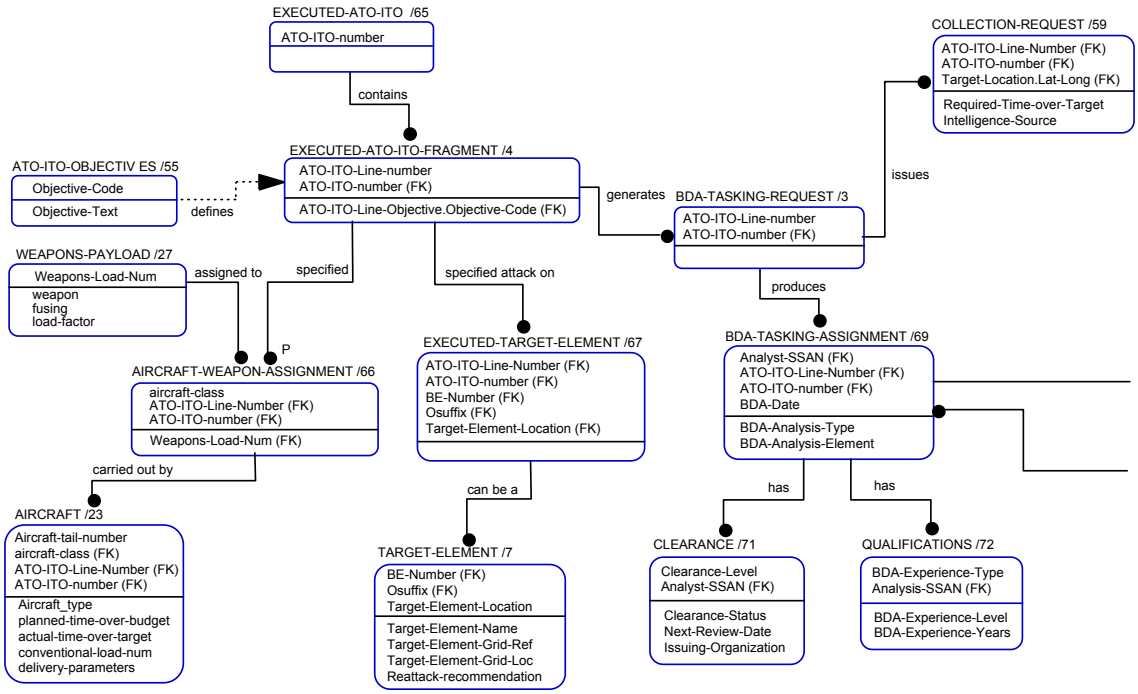
Although they are both called data models, the Logical Data Model should not be confused with the Core Architecture Data Model (CADM). The Logical Data Model is an architecture product and describes architecture-specific information exchanges. The CADM is not an architecture product. The CADM describes the generic form (i.e., meta-model) of a Logical Data Model, and CADM-based repositories can store Logical Data Models from any Framework-based architecture project. Thus, the CADM addresses the definitions and relationships of generic entities and attributes, while a Logical Data Model for missile defense, for example, might address definitions and relationships for missile tracks and points of impact.

A formal "data" model (e.g., IDEF1X) that is detailed down to the level of data, their attributes, and their relationships is required for some purposes, such as when validation of completeness and consistency is required. However, for other purposes, a higher-level information-focused data model of the domain of interest will suffice, such as an entity-relation model without entity attributes. The term "data model" is used here in this context, regardless of the level of detail the model exhibits.

The Logical Data Model can be used as an alternative to the Activity Model, for architectures where an "information-focused" view is desired, or in conjunction with the Activity Model. For example, an information-focused view may be necessary for interoperability when shared data syntax and semantics form the basis for greater degrees of information systems interoperability, or when a shared database is the basis for integration and interoperability among business processes and systems.

Template for a Logical Data Model (with attributes). The format is intentionally generic to avoid implying a specific methodology.

Example: Logical Data Model (OV-7) -- Template



Fully Attributed Logical Data Model (OV-7) -- Air Tasking Order Example

The OV-7 is not normally produced as a separate product of an architecture. For further information refer to the DOD C4ISR Framework Document and to the current ARCADM standards.

TRADOC AIMD Validation

The AIMD performs the technical validation of architectures – the right products, in the right format, with the right data. Members of the AIMD-S check:

Content Validation. Ensures that the single architecture, once all proponent input has been integrated, is doctrinally correct, consistent with operational concepts, system fielding plans and the Army Vision. This is accomplished by ensuring the architecture is complete, accurate, consistent and relevant.

Complete. All products specified by the architecture plan have been produced to the required level of detail as specified in the TRADOC Architecture and AEADP .

Accurate. Accuracy is evaluated in two areas – content and format.

Content. The products are consistent with warfighting doctrine and concepts, systems capabilities and fielding plans. This is normally accomplished through a DTLOMSPF analysis and coordination with concept and systems experts such as TSMs, PMs, concept developers, etc.

Format. The products are developed to the standards specified in the ARA Development Plan, Guide Document, DoD Framework, FIPS, CJCSI, this document, etc.

Consistent. Products have been developed from the same scope, viewpoint and have similar content. Consistency ensures that each piece-part of the architecture is easily integrated into a single, comprehensive whole. It also ensures that the meaning and substance of each piece is not changed as it is integrated into the whole, so that operational and systems views faithfully represent the data.

Relevant. Products have answered the questions posed by the architecture effort in a timely manner so that they can be used in the decision-making process.

The AIMD also performs both programmatic and technical validation.

Programmatic – Architecture development objectives can be satisfied within budget and time constraints while still achieving acquisition strategies and objectives.

Technical – Architecture correctly describes TRADOC's C4ISR requirement for the organization, functional area or system of systems. Depending upon the complexity or sensitivity of the architecture the TRADOC AIMD may choose one or more of the following techniques to conduct technical validation:

- TRADOC AIMD Director Endorse AIMD-S validation
- The TRADOC AIMD Director (with his/her staff) conducts the validation
- The TRADOC AIMD convenes a Council of Colonels Architecture Validation Board (AVB)

TRADOC Architecture Approval

The TRADOC approval process begins with the architecture being approved at the proponent level. The proponent DCD/CG signature signifies that the products have been coordinated within the TRADOC community and connectivity exists. The validation process, having preceded the forwarding of the architecture for approval, is further proof that the products are in accordance with Army doctrine/emerging doctrine and is appropriately linked to the Joint community. At this point, all that remains is for the senior leadership to approve and release the architecture.

The nature of the architecture determines the level of approval required. For architectures that affect only the proponent, the approval authority is the proponent School/Center Commander. For Legacy organizations, Interim organizations and architectures that impact only a limited number of proponents, the approval authority is the DCSDEV. For Objective Force architectures, the approval authority runs through the DCSDEV, but is the TRADOC CG. In some cases, for example Army components of standing Joint organizations, the approval may rest at HQDA.

The AIMD will determine the approval authority and will include it in the Tasking Letter.

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LIST OF ABRIVATIONS AND ACRONYMS:

1DFSA	First Digitized Force Systems Architecture
2DFSA	Second Digitized Force Systems Architecture
4ID	4th Infantry Division (Mechanized)

A

A2C2S	Army Airborne Command and Control Systems
AADC	Area Air Defense Commander
AAE	Army Acquisition Executive
AAMDC	Army Air and Missile Defense Command
AAN	Army After Next
AAR	After Action Review
AARMS	Army Architecture Repository Management System
ABCS	Army Battle Command System
ABL	Airborne Laser
ABMS	Assault Breaching Marking System
ACA	Airspace Control Authority
ACC	Air Combat Command
ACO	Airspace Control Order
ACP	Aircraft Control Plan
ACTD	Advanced Concept Technology Demonstration
ACTID	Advanced Concepts Test and Integration Directorate
ADA	Air Defense Artillery
ADAM CELL	Air Defense and Aerospace Management Cell
ADC	Air Defense Commander
ADE	Architecture Development Environment
ADCON	Administrative Control
ADMP	Army Digitization Master Plan
ADO	Army Digitization Office
ADOCS	Automated Deep Operations Coordination System
ADP	Air Defense Plan

ADS	Advanced Distributed Simulation
ADSI	Air Defense Systems Integrator
ADTOC	Air Defense Tactical Operations Center
AE	Army Experiment
AEA	Army Enterprise Architecture
AEADP	Army Enterprise Architecture Development Plan
AEAFD	Army Enterprise Architecture Framework Document
AECP	Army Experimentation Campaign Plan
AFAMS	Air Force Agency for Modeling and Simulation
AFATDS	Advanced Field Artillery Tactical Data System
AFC2TIG	Air Force Command and Control Training Innovation Group
AFFOR	Air Forces
AFIWC	Air Force Information Warfare Center
AFRL	Air Force Research Library
AFSERS	Air Force Synthetic Environment for Reconnaissance
AFSPC	Air Force Space Command
AHP	Advanced Hierarchy Procedure
AI	Air Interdiction
AIA	Air Intelligence Agency
AIC	Architecture Integration Center
AIPC (Old)	Architecture Integration and Processing Center
AIMD	Architecture Integration Management Directorate
AIMD-S	Architecture Integration Management Directorate - South
AJC2	Adoptive Joint Command Center
ALCON	All Concerned
ALERT	Attack and Launch Early Reporting to Theater
AMC	Air Mobility Command
AMD	Air and Missile Defense
AMDPCS	Air and Missile Defense Planning and Control System
AMDWS	Air and Missile Defense Workstation
AMPS	Aviation Master Planning System
AMS	Army Modernization Schedule
AMSAA	Army Materiel Systems Analysis Activity

ANIF	Automatic Network Information Flow
AO	Area of Operations
AOA	Army Operational Architecture
ASA	Army Systems Architecture
ASAFD	Army Systems Architecture Framework Document
AOACMT	Attack Operations Against Critical Mobile Targets
AOC	Air Operations Center
AODA	Attack Operations Decision Aid
AOE	Army of Excellence
AOI	Area of Interest
AOR	Area of Responsibility
APL	Applied Physics Lab
APOD	Aerial Port of Debarkation
ARCADM	Army Core Architecture Data Model
ARFOR	Army Forces
ARI	Army Research Institute
ARV	Armed Reconnaissance Vehicle
ASAS	All Source Analysis System
ASAS RWS	All Source Analysis System Remote Workstation
ASAT	Anti-Satellite
ASB	Aviation Support Battalion
ASCC	Army Service Component Commander
ASEO	Army Systems Engineering Office
ASI/IMCN	AOC Simulation Interface
ASIP	Advanced SINCGARS Improvement Program
ASOC	Air Support Operations Center
ASSET	Automated Scripted Simulator Exercise Trainer
ASTAB	Automated Status Board
ASW	Anti-Submarine Warfare
AT	Anti-Tank
ATA	Army Technical Architecture
ATACMS	Army Tactical Missile System
ATC	Air Traffic Controller

ATCCS	Army Tactical Command and Control Systems
ATD	Advanced Technology Demonstration
ATDS	Airborne Tactical Data System
ATI	AWSIM-TBMCS Interface
ATO	Air Tasking Order
AUTO SIGS	Auto Synthetic Imagery Generation System
AUTODIN	Automatic Digital Network
AV	All (architecture) View
AV-1	Overview and Summary Information
AV-2	Integrated Dictionary
AVB	Architecture Validation Board
AVIM	Aviation Intermediate Maintenance
AVUM	Aviation Unit Maintenance
AWACS	Airborne Warning and Control System
AWARE	Advanced Warfare Environment
AWE	Advanced Warfighting Experiment
AWSIM	Air Warfare Simulation

B

BAS	Battlefield Automated Systems
BC	Battle Command
BCBL	Battle Command Battle Laboratory
BCC	Battle Control Center
BCD	Battlefield Coordination Detachment
BCIS	Battlefield Combat Identification System
BCT	Brigade Combat Team
BDA	Battle Damage Assessment
BFA	Battlefield Functional Area
BFACS	Battlefield Functional Area Control System
BLOC	Battalion Logistics Operations Center
BLOS	Beyond-Line-of-Sight

BIDS	Battlefield Intrusion Detection System
BMD	Ballistic Missile Defense
BMDN	Ballistic Missile Defense Network
BMDO	Ballistic Missile Defense Office
BOIP	Basis of Issue Plan
BOS	Battlefield Operating Systems
BRITE	Broadcast Request Imagery Technical Experiment
BVTC	Battlefield Video Teleconference

C

C & C Element	Command and Control Element
C^2IPS	Command and Control Information Processing System
C^2PC	Command and Control Personal Computer
C^2W	Command and Control Warfare
C^3I	Command, Control, Communications and Intelligence
C^4I GW	C^4I Gateway
C^4I	Command, Control, Communications, Computers, and Intelligence
C^4ISR	Command. Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
C4RDP	C4 Requirements Definition Program
CADM	Core Architecture Data Model
CAIV	Corps as an Independent Cost Variable
CAOC	Combined Air Operations Center
CART	Crisis Action Response Team
CAS	Close Air Support
CATS	Combined Arms Training Strategy
CATT	C^2W Analysis and Targeting Tool
CBRS	Concept Based Requirements System
CCD	Camouflage, Concealment and Deception
CCDA	Command Center Decision Aids
CDCM	Coastal Defense Cruise Missile
CDE	Chemical Defense Equipment
CE	Civil Environment

CECOM	Communications Electronic Command
CEM	Communications Effectiveness Model
CFC	Coalition Force Commander
CFF	Calls For Fire
CFLCC	Coalition Force Land Component Commander
CGS	Common Ground Station
CHD	Conservative Heavy Division
CHS	Common Hardware/Software
CI	Counterintelligence
CIC	Command Integration Cell
CIDS	Combat Identification System
CIO	Chief Information Officer; Corporate Information Officer
CM	Configuration Management
CIS	Combat Intelligence System
CIC	Command Information Center
CIWS	Close In Weapons System
CJF	Commander Joint Force
CJTF	Commander Joint Task Force
CLAMO	Center for Law and Military Operations
GPS	Global Positioning System
CMB	Configuration Management Board
CMO	Civil Military Operations
CMOC	Civil Military Operations Center
CMP	Configuration Management Plan
CND	Computer Network Defense
CNO	Computer Network Operations
CNR	Combat Net Radio
COMM	Communications
COA	Courses of Action
CoC	Council of Colonels
COCOM	Combatant Command
COE	Centers of Excellence
COG	Center of Gravity

COMARFOR	Commander of Army Forces
COMINT	Communications Intelligence
COMMARFOR	Commander of Marine Forces
COMSEC	Communications Security
COMWX	Computerized MASINT Weather
CONOPS	Concept of Operations
CONPLAN	Concept Plan
COP	Common Operational Picture
CORBA	Common Object Request Broker Architecture
COTS	Commercial Off-the-Shelf
CP	Command Post
CPIC	Command, Planning & Integration Center
CPX	Command Post Exercise
CRAF	Civil Reserve Air Fleet
CRC	Control and Reporting Center
CRD	Capstone Requirements Document
CRE	Control and Reporting Element
CROP	Common Relevant Operational Picture
CS	Combat Support
CSA	Configuration Status Accounting
CSP	Communication Support Processor
CSS	Combat Service Support
CSSBL	Combat Service Support Battle Laboratory
CSSCS	Combat Service Support Control System
CST	Common Operational Picture (COP) Synchronization Tool
CSTAR	Combat Synthetic Training Assessment Range
CT	Capability Test
CTAPS	Contingency Theater Automated Planning System
CTL	Candidate Target List
CUL	Common User Logistics
	Intelligence

D

DAMPL	Department of the Army Master Priority List
DAWE	Division Advanced Warfighting Experiment
DBCC	Dynamic Battle Control Cell
DBM	Database Manager
DBMS	Database Management System
DBST	Digital Battlestaff Sustainment Trainer
DC	Displaced Civilian
DC2S	Digital Command & Control System
DCARS	Digital Collection, Analysis and Review System
DCGS	Distributed Common Ground Station
DCSLOG	Deputy Chief of Staff for Logistics
DCSINT	Deputy Chief of Staff for Intelligence
DCSOPS	Deputy Chief of Staff for Operations
DCTN	Defense Commercial Telecommunications Network
DCTS	Defense Collaborative Tool Suite
DDN	Defense Data Network
DEFCON	Defense Readiness Condition
DEPMEDS	Deployable Medical Systems
DICE	Distributed Information Warfare Constructive Environment
DIL	Digital Integrated Laboratory
DIME	Diplomatic, Information, Military and Economic
DIO	Defense Information Operations
DIRLAUTH	Direct Liaison Authorized
DIS	Distributed Interactive Simulation
DISA	Defense Information Systems Agency
DISC4/ODISC4 (G-6)	Director of Information Systems Command, Control, Communications, and Computers/Office of the DISC4
DISN	Defense Information Systems Network
DJFN	Digital Joint Fires Network
DLA	Defense Logistics Agency

DLRC	Digital Leader Reaction Course
DM	Data Management
DMA	Defense Mapping Agency
DMC	Data Management Center
DMD	Data Management Division
DMPI	Desired Mean Point of Impact
DMS	Defense Message System
DMTIX	Dynamic Moving Target Information Exploitation
DNA	Defense Nuclear Agency
DNVT	Digital Non-secure Voice Terminal
DOC	Desired Operational Capabilities
DOCC	Deep Operations Coordination Cell
DoD	Department of Defense
DOS	Department of State
DOTMLPF	Doctrine, Organization, Training, Material, Leadership, People and Facilities
DOTMLPF-P	Doctrine, Organization, Training, Material, leadership, People, Facilities and Policy
DRG	Data Review Group
DRS	Digital Reconnaissance System
DS	Direct Support
DS^3	Distributed Sensor Simulation System
DSICS	Distributed Signal Intelligence Collection System
DSN	Defense Switching Network
DST	Decision Support Template
DSVT	Digital, Secure Voice Telephone
DTB	Daily Targeting Boar
DTES	Divisional Tactical Exploitation System
DTF	Digital Target Folders
DTLOMS	Doctrine, Training, Leadership Development,
DTS	DIS Tool Set
DTSS-D	Digital Topographic Support System - Deployable Organization, Material and Soldiers

DVE	Drivers Visual Enhancement

E

EAC	Echelon Above Corps
EAD	Echelon Above Division
EADSIM	Extended Air Defense Simulation
EAP	Emergency Action Procedures
EBO	Effects-Based Operations
EC	Electronic Combat
ECC	Effects Coordination Cell
ECCM	Electronic Counter-Countermeasures
ECM	Electronic Countermeasures
ECP	Engineering Change Proposal
ECS	Engagement Control Station (Patriot)
ECT	Effects Coordination Team
EEA	Essential Elements of Analysis
EEFA	Early Entry Force Analysis
EEFI	Essential Elements of Friendly Information
EEI	Essential Elements of Information
EFX	Expeditionary Force Experiment
EIW – Light	Enhanced Imagery Workstation - Light
EJFHQ	Experimental Joint Force Headquarters
ELINT	Electronic Intelligence
E-Mail	Electronic Mail
EMP	Electromagnetic Pulse
EMPRS	Enroute Mission Planning and Rehearsal System
EMT	Expert Missile Tracker
EMUT	Enhanced Manpack Ultra high frequency Terminal
ENTR	Embedded National Tactical Receiver Card
EOC	Emergency Operations Center
EOD	Explosive Ordnance Disposal
EPLRS	Enhanced Position Location and Reporting System

EPP	Extended Planning Period
ES	Electronic Warfare Support
ESC	Electronic Systems Command
ESG	Expeditionary Sensor Grid
ESM	Electronic Support Measures
ETC	Exercise Technical Control
ETF	Electronic Target Folder
ETIPD	Everything in Place Date
ETO	Effects Tasking Order
EW	Electronic Warfare
EWG	EXFOR Working Group
EXFOR	Experimental Force
EXORD	Execute Order

F

FAADC^{2}I	Forward Area Air Defense Command, Control, and Intelligence
FAADC^{3}I	Forward Area Air Defense Command, Control, Communications, and Intelligence
FAAD	Forward Area Air Defense
FARP	Forward Arming and Refueling Point
FBCB2	Force XXI Battle Command Brigade and Below
FBE	Fleet Battle Experiment
FCS	Future Combat Systems
FCTC	Fleet Combat Training Center
FDC	Fire Direction Center
FDD	Force Development Directorate
FDDI	Fiber optic Distribution Data Interface
FDO	Flexible Deterrent Operations
FDP	Full Dimensional Protection
FDR	Future Data Radio
FECC	Fire and Effects Coordination Cell
FEO	Forcible Entry Operations

FFIR	Friendly Force Information Requirements
FFR	Force Feasibility Review
FHMUX	Frequency Hopping Multiplexer
FHSS	Frequency Hopping Spread Spectrum
FID	Federation Implementation Document
FIOP	Family of Interoperable Pictures
FIST	Fire Support Team
FM	Frequency Modulation
FMO	Frequency Management Office
FMS-D	Flight Mission Simulator – Digital (Patriot)
FOB	Forward Operating Base
FOC	Future Operational Capabilities
FOM	Federation Object Model
FORSCOM	Forces Command
FOS	Forward Observer Software
FP	Force Package
FP	Force Protection
FP-1	Force Package-1
FSA	Fire Support Area/Forward Support Area
FSE	Fire Support Element
FSO	Fire Support Officer
FSS	Fire Support Section
FSCOORD	Fire Support Coordinator
FT	Functional Test
FTP	File Transfer Protocol
FUE	First Unit Equipped
FY	Fiscal Year

G

GALE-L	Generic Area Limitation Environment – Lite
GAT	Guidance, Apportionment, and Targeting Cell
GAWS	GIAC Analytical Workstation
GBS	Global Broadcast Service

GCCS	Global Command and Control System
GCCS-A	Global Command and Control System – Army
GCCS-M	Global Command and Control System – Maritime
GCN	Ground Communications Node
GCS	Ground Control Station
GCSS	Global Command Service Support
GDS	Generic Data Server
GDSS	Global Decision Support System
GEED	Geophysical Environmental Effects Distributor
GFE	Government Furnished Equipment
GIAC	Graphical Input Aggregate Control
GIG	Global Information Grid
GIS	Geographic Information System
GISR-C	GCCS Intelligence Surveillance Reconnaissance Component
GLCM	Ground Launched Cruise Missile
GLDS	Ground Laser Designator System
GOSC	General Officer Steering Council
GPS	Global Positioning System
GSM	Ground Station Module
GSR	Ground Surveillance Radar
GSTF	Global Strike Task Force
GTN	Global Transportation Network
GUI	Graphical User Interface

H

HA	Humanitarian Assistance
HARM	High Speed Anti-Radiation Missile
HCI	Human Computer Interface
HCLOS	High Capacity Line Of Sight
HF	High Frequency
HFE	Human Factors Engineering
HIMAD	High and Medium Altitude Missile Air Defenses

HIMARS	High Mobility Artillery Rocket System/Highly Mobile Artillery System
HLA	High Level Architecture
HN	Host Nation
HPT	High Priority Target (s)
HRSS	High Resolution Systems Simulator
HSMUX	High Speed Multiplexer
HSV	High Speed Vessel
HTML	Hyper Text Markup Language
HUMINT	Human Intelligence
HVA	High Value Asset
HVT	High Value Target (s)
HW	Hardware

I

I/O	Input/Output
IA	Information Assurance
IAC	Interagency Community
IADS	Integrated Air Defense System
IAS	Intelligence Analysis Station
IAV	Interim Armored Vehicle
IBCT	Interim Brigade Combat Team
IBIS	Integrated Battlefield Intelligence System
ICC	Information and Coordination Central (Patriot)
ICD	Interface Control Document
ICE	Interactive Constructive Environment
ICIDS	Individual Combat Identification System
ICN	Interface Control Network
ICP	Incremental Change Package
ICT	Integrated Concept Team
IDA	Institute for Defense Analysis
IDB	Integrated Data Base
IDD	Interim Division Design

IDM	Improved Data Modem
IDS	Intrusion Detection System
IEEE	Institute of Electrical and Electronics Engineers
IER	Information Exchange Requirement
IEW	Intelligence and Electronic Warfare
IEWCS	Intelligence Electronic Warfare Common Sensor
IFDC	Improved Field Data Collector
IFF	Identification, Friend or Foe
IHFR	Improved High Frequency Radio
IKM	Information Knowledge Management
IIR	Initial Imagery Report
ILS	Integrated Logistics Support
IM	Integration Milestone/Information Management
IMETS	Integrated Meteorological System
IMETS – L	Integrated Meteorological System - Light
IMINT	Information Management Intelligence
IMO	Information Management Officer
INC	Integrated Network Controller
INE	Inline Network Encryptor
INFOSEC	Information Security
INTEL	Intelligence
IO	Information Operations
IOC	Initial Operational Capability
IOS	Integrated Operations System (USMC TCO/IAS)
IP	Internet Protocol
IPB	Intelligence Preparation of the Battlefield
IPIR	Initial Photographic Interpretation Report
IPT	Integrated Product Team
IPL	Image Product Library
IPRNET	Internet Protocol Router Network
IRDM	Information Retrieval and Delivery Management
IREMBASS	Intelligence-Remote Battlefield Sensors
IS	Information Superiority

ISB	Intermediate Staging Base
IS-C^2	Information Superiority Command and Control
ISDN	Integrated Services Digital Network
ISR	Intelligence, Surveillance, Reconnaissance
ITV	In Transit Visibility
IT	Information Technology
IV&V	Independent Verification and Validation
IVIS	Integrated Vehicular Information System
IW	Information Warfare
IWEG	Information Warfare Effects Generator

J

JASGS	Joint Automated Single Guard Solution
JAAT	Joint Army Air Tactical
JAOC	Joint Air Operations Center
JEMPRS	Joint Enroute Mission Planning and Rehearsal System
JIP	Joint Interactive Planning
JICO	Joint Interface Control Officer
JFACC	Joint Force Air Component Commander
JFHQ	Joint Forces Headquarters
JFCOM	Joint Forces Command
JFSOC	Joint Forces Special Operations Component
JIB	Joint Information Bureau
JIC	Joint Intelligence Center
JIPB	Joint Intelligence of the Battlespace
JIPTL	Joint Integrated Prioritized Target List
JLOTS	Joint Logistics Over the Shore
JLRC	Joint Logistics Readiness Center
JNCO	Joint Network Control Officer
JOA	Joint Operational Architecture
JOPES	Joint Operation Planning and Execution System
JPG	Joint Planning Group

JSPS	Joint Strategic Planning System
JTA	Joint Tactical Action (Joint Technical Architecture)
JTF	Joint Task Force
JTIDS	Joint Tactical Information Distribution System
JTRS	Joint Tactical Radio System
JULLS	Joint Universal Lesson Learned System
JVB	Joint Visitors Bureau
JVB	Joint Virtual Battlefield
JBC	Joint Battle Center
JBMI	Joint Battle Management Integration
JCAS	Joint Command and Control Attack Simulation
JCATS	Joint Conflict and Tactical Simulation
JCC	JTASC Control Center
JCF	Joint Contingency Force
JCSE	Joint Continuous Strike Environment
JDISS	Joint Deployable Intelligence Support System
JDPI	Joint Deployment Process Improvement
JECEWSI	Joint Electronic Combat-Electronic Warfare Simulation
JECG	Joint Exercise Control Group
JEFX	Joint Expeditionary Force Experiment
JEMIS	Joint Event Management Information System
JESNET	JTASC Exercise Support Network
JETF	Joint Electronic Target Folder
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JFIC	Joint Forces Intelligence Center
JFLCC	Joint Force Land Component Commander
JFMCC	Joint Force Maritime Component Commander
JGG	Joint Ground Game (JQUAD+)
JHU	Johns Hopkins University
JICO	Joint Interface Control Officer
JIMM	Joint Interim Mission Model
JIOC	Joint Information Operations Center

JISRM	Joint Intelligence, Surveillance, and Reconnaissance Management
JNETS	Joint Networks Simulation
JNTF	Joint National Test Facility
JOISIM	Joint Operations Information Simulation
JOTBS	Joint Operational Test Bed System
JOVE	Joint Operations Visualization Environment
JQUAD	The System Consisting of: JCAS, JECEWSI, JNETS, and JOISIM
JSAF	Joint Semi-Automated Forces
JSF	Joint Strike Fighter
JSOTF	Joint Special Operations Task Force
JSS	JSTARS Simulation
JST	JWFC Support Team
JSTARS	Joint Surveillance Target Acquisition Radar System
JSWS	JSTARS Work Station
JTAV	Joint Total Asset Visibility
JTAGS	Joint Tactical Ground Station
JTASC	Joint Training, Analysis and Simulation Center
JTF	Joint Task Force
JTIDS	Joint Tactical Information Distribution System
JTMD	Joint Theater Missile Defense
JTT – B	Joint Tactical Terminal – Briefcase
JWEBL	Joint Warfighting Experimentation Battle Lab
JWFC	Joint Warfighting Center
JWICS	Joint Worldwide Intelligence Communications System

K

KMO	Knowledge Management Officer
KPP	Key Performance Parameters

L

LAN	Local Area Network

LAWS	Land Attack Weapons System (Navy)
LCC	Land Component Commander
LDF	Lightweight Digital Facsimile
LCM	Life-Cycle Management
LDM	Logistical Data Model
LER	Loss Exchange Ratio
LGSM	Light Ground Station Module
LISI	Levels of Information System Interoperability
LLI	Long Lead Item
LLDR	Lightweight Laser Designator Rangefinder
LNO	Liaison Officer
LOC	Lines of Communication
LOGREP	Logistics Report
LOGSIM	Logistics Simulation
LOS	Line Of Sight
LOTS	Logistics Over the Shore
LRC	Logistics Readiness Center
LRIP	Low-Rate Initial Production
LRSU-BRS	Long-range Surveillance Unit – Radio Station
LSD	Large Screen Display
LTACFIRE	Lightweight Tactical Fire Direction System
LTRO	Legal Technical Resource Office
LUT	Limited User Test
LVRS	Lightweight Video Reconnaissance System
LWIR	Long-Wave Infrared
LWNET	Land Warrior Net

M

M&E	Mapping and Enumerations
M&S	Modeling and Simulation
MA	Mission Analysis

MADS	Mobile Air Defense System
MACOM	Major Command
MAGTF	Marine Air Ground Task Force
MANPADS	Man-Portable Air Defense System
MANPRINT	Manpower and Personnel Integration
MAP	Military Assistance Program
MARCI	Multi-host Automation Remote Control and Instrumentation
MARFOR	Marine Corp Forces
MASINT	Measurements and Signatures Intelligence
MATT	Multi-Mission Advanced Tactical Terminal
Mbs	Megabits per second
MC02	Millennium Challenge 2002
MC4	Medical Communications for Combat Casualty Care
MCE	Modular Control Element (AN/TYQ-23)
MCM	Mine Countermeasures
MCS	Maneuver Control System
MCS NCU	Maneuver Control System Notebook Computer Unit
MCS VCU	Maneuver Control System Versatile Computer Unit
MDEP	Management Decision Package
MDMP	Military Decision Making Process
MDS/RPM	Mission Database System
MDST	Missile Defense and Space Tool
MEB	Marine Expeditionary Brigade
MEDEVAC	Medical Evacuation
MEF	Marine Expeditionary Force
METL	Mission Essential Task List
METOC	Meteorological and Oceanographic
METOC	Meteorological Operations
METT-T	Mission, Enemy, Terrain, Troops, and Time Available
METT-TC	Mission, Enemy, Terrain, Troops, Time Available and Civilians
MEU	Marine Expeditionary Unit
MEWR	Mission Essential Wartime Requirements

MFCS - LITE	Mortar Fire Control System – LITE
MGS	Mobile Gun System
MIDB	Modernized Intelligence Database
MILCON	Military Construction
MIL-STD	Military Standard
MISREP	Mission Report
MLRS	Multiple Launch Rocket System
MLS	Multi Level Security
MLST3	Multi Link System Test and Training Tool
MNFC	Multinational Force Commander
MNS	Mission Needs Statement
MOE	Measure of Effectiveness
MOG	Maximum (aircraft) on the Ground
MOM	Measure of Merit
MOOTW	Military Operations Other Than War
MOP	Measure of Performance/Memorandum of Policy
MOPP	Mission Oriented Protective Posture
MOS	Military Occupational Specialty
MOTS	Military Off the Shelf
MOUT	Military Operations in Urban Terrain
MSC	Mission Support Center
MSE	Mobile Subscriber Equipment
MSEL	Master Scenario Events List
MSIM	Master Simulation
MSRT	Mobile Subscriber Radio Telephone Terminal
MSTP	MAGTF Staff Training Program
MTBEFF	Mean Time Between Essential Function Failure
MTBOMF	Mean Time Between Operational Mission Failure
MTI	Moving Target Indicator
MTI	Moving Target Indicator
MTIX	Moving Target Information Exploitation
MTMC	Military Traffic Management Command
MTOE	Modified Table of Organization and Equipment

MTP	Mission, Task, Purpose
MTS	Movements Tracking System
MTT	Mobile Training Team
MTTR	Mean Time to Repair
MTV	Medium Tactical Vehicle
MTW	Major Theater War
MUAV	Medium Unmanned Aerial Vehicle
MUSE	Multiple UAV Simulation Environment
MUST	Multi-mission UHF Satellite Transceiver

N

NAI	Named Area of Interest
NAM	Network Assessment Model
NAVAIDS	Navigational Aids
NAVFOR	Naval Forces
NBC	Nuclear, Biological and Chemical
NC	Node Center
NCA	National Command Authority
NCS	Net Control Station
NCW	Network Centric Warfare
NDI	Non-Developmental Items
NEO	Noncombatant Evacuation Operation
NEPA	National Environmental Policy Act
NES	Network Encryption System
NET	New Equipment Training
NETT	New Equipment Training Team
NetFires	NLOS Fire Support System Vehicle
NFA	No-Fire Area
NGF	Naval Gun Fire
NGO	Nongovernmental Organization
NIDS	Network Intrusion Detection System
NIMA	National Imagery and Mapping Agency
NIST	National Intelligence Support Team

NJI	Naval JSTARS Interface (GCCS-M)
NLOS	NON-Line Of Site
NMC	Network Management Center
NMT	Network Management Tool (s)
NOR	Notice of Revision
NRO	National Reconnaissance Office
NSC	National Simulation Center
NTC	National Training Center
NTDR	Near Term Digital Radio
NTDS	Navy Tactical Data System
NUWC	Naval Undersea Warfare Center
NWARS	National War-gaming System
NWDC	Naval Warfare Development Command

O

O&I	Operation and Intelligence
O&M	Operations and Maintenance
O&O	Organization and Operations
OA	Operational Architecture
OA	Operational Assessment
OA/SA	Operational Architecture/Systems Architecture
OC	Observers Controllers
OCSW	Objective Crew-Served Weapon
ODISC4 (G-6)	Office of the Director of Information Systems for Command, Control, Communications and Computers
OGO	Other Governmental Organizations
OIEM	Operational Information Exchange Matrix
OIO	Offensive Information Operations
OMFTS	Operational Maneuver from the Sea
ONA	Operational Net Assessment
ONS	Operational Need Statement
OOB	Order of Battle
OOTW	Operations Other Than War

OPCON	Operational Control
OPFAC	Operational Facility
OPFOR	Opposing Force
OPG	Operations Planning Group
OPLAN	Operations Plan
OPORD	Operations Order
OPREP	Operations Report
OPSEC	Operations Security
OPTEC	Operational Test and Evaluation Command
OPTEMPO	Operational Tempo
OR	Operational Readiness
ORD	Operational Readiness Document
OS	Operating System
OSINT	Open-Source Intelligence
OTAR	Over the Air Rekeying
OTC	Operational Test Command
OTH-G	Over-The-Horizon, Gold
OV	Operational (Architecture) View
OV-1	High-Level Operational Concept Diagram
OV-2	Operational Node Connectivity Description
OV-3	Operational information Exchange Matrix
OV-4	Command Relationship Chart
OV-5	Activity Model
OV-6a	Operational Rules Model
OV-6b	Operational State Transition Description
OV-6c	Operational Event/Trace Description
OV-7	Logical Data Model

P

P3I	Pre-Planned Product Improvement
PAC2	Patriot Anti-tactical missile Capability, Phase 2
PAC3	Patriot Anti-tactical missile Capability, Phase 3
PAO	Public Affairs Officer

PATRIOT	Phased Array Tracking to Intercept of Target
PC	Personal Computer
PCC	Planning & Coordination Council
PCS	Personal Communications System
PDU	Protocol Data Unit
PE	Precision Engagement
PEGEM	Post-Engagement Effects Model
PEL	Prioritized Effects List
PEO C3S (Old)	Program Executive Office Command Control and Communications Systems
PEO C3T	Program Executive Office Command Control and Communications Tactical
PEO STAMIS	Program Executive Officer – Standard Army Management Information Systems
PEWS	Platoon Early Warning System
PGM	Precision Guided Missiles
PHOTINT	Photographic Intelligence
PIR	Priority Intelligence Requirements
PLGR	Precision Lightweight Ground Position Receiver
PLRS	Positioning Location Reporting System
PM	Program Manager
PME	Prime Mission Element
PMESI	Political, Military, Economic, Social and Infrastructure
POC	Point of Contact
POD	Port Of Debarkation
POE	Port of Embarkation
POLAD	Political Advisor
POM	Program Objective Memorandum
POTF	Psychological Operations Task Force
POTS	Plain Old Telephone Set
PPBES	Planning, Programming, Budgeting, and Execution System
PPP	Point-to-Point Protocol
PSM+	Portable Space Model Enhanced

PSE	Prime System Element
PSYOP	Psychological Operations
PSYWAR	Psychological Warfare
PTW+	Precision Targeting Workstation
PVO	Private Voluntary Organizations

Q

QA	Quality Assurance
QC	Quality Check
QRE	Quick Reaction Element

R

R&D	Research and Development
RAM	Reliability, Availability, and Maintainability
RAMP	Review and Analysis of Missions and Priorities
RAOC	Rear Area Operations Center
RAS	Rear Area Security
RAU	Random Access Unit
RC	Response Cell
RCP	Relevant Common Picture
RDAP	Research Development and Acquisition Plan
RDD	Requirements Documentation Directorate
RDO	Rapid Decisive Operations
RECCE	Reconnaissance
RECCEXREP	Reconnaissance Exploitation Report
RDEC	Research, Development and Engineering Center
REF	Regional Engagement Force
REGMT	Regiment
REMAB	Regiment Mobilization Base
REMBASS	Remotely Monitored Battlefield Sensor System
RFI	Request for Information
RFP	Request for Proposal
RISTA	Reconnaissance Intelligence, Surveillance and Target

	Acquisition
RJMT	Rivet Joint Mission Trainer
ROA	Restricted Operations Area
ROM	Rough Order of Magnitude
RPM	Route Planning Module
RPV	Remotely Piloted Vehicle
RRF	Ready Room of the Future
RRFI	Response to Request For Information
RSE	Ranger Support Element
RSOI	Reception, Staging, Onward Movement and Integration
RSTA	Reconnaissance, Surveillance and Target Acquisition
RSV	Re-supply Vehicle
R&S	Reconnaissance and Surveillance
RTI	Run Time Infrastructure
RTO	Radio/Telephone Operator
RTOS	Reconfigurable Tactical Operations Simulator
RTSS	Real Time Software System
RTV	Rapid Terrain Visualization
RWS	Remote Workstation

S

SA	Situational Awareness
SA	Systems Architecture
SAA	Situational Awareness and Analysis
SABRE	Synthetic Aero Battle Research Environment (USAF AWSIM in HLA Federation)
SAC	Simulation Analysis Center (in USJFCOM J9 Building)
SACP	Systems Architecture Change Proposal
SADL	Situational Awareness DataLink
SALUTE	Size, Activity, Location, Unit, Time, Equipment (Report)
SAM	Surface to Air Missile
SAMAS	Structure and Manpower Allocation
SAMS	Standard Army Maintenance System

SAO	Security Assistance Organization
SAP	Special Access Program
SASO	Stability and Support Operations
SATCOM	Satellite Communications
SATS	Stand-Alone TENCAP Simulator
SBIRS	Space-Based Infrared System
SBU	Sensitive But Unclassified
SCI	Sensitive Compartmented Information
SCIF	Sensitive Compartmented Information Facility
SCAMP	Single Channel Anti-jam Man-Portable Terminal
SDF	Simulation Data Flow
SDFD	Simulation Data Flow Diagram
SDR	Surrogate Data Radio
SE	Synthetic Environment
SEAD	Suppression of Enemy Air Defense
SEP	System Enhancement Program
SEP	Signal Entry Panel
SHF	Super High Frequency
SI	Special Intelligence (Systems Integrator)
SICPS	Standard Integrated Command Post Shelter
SIDPERS	Standard Installation Division Personnel System
SIG	Signal
SIGCEN	Signal Center
SIGINT	Signal Intelligence
SIGS	Synthetic Imagery Generation System
SINCGARS	Single Channel Ground and Airborne Radio System
SIPRNET	Secret Internet Protocol Router Network
SIR	Serious Incident Report
SITREP	Situation Report
SITREP	Situation Report
SJTFHQ	Standing Joint Task Force Headquarters
SLAMEM	Simulation of the Location and Attack of Mobile Enemy Missiles
SLC	Satellite Laser Communication

SMART	Secure Messaging And Routing Terminal
SMART-T	Secure Mobile Anti-jamming Reliable Tactical Terminal
SMAT	Space Missile Analysis Tool
SMDBL	Space and Missile Defense Battle Lab
SME	Subject Matter Expert
SMI	Soldier Machine Interface
SMV	Space Maneuver Vehicle
SNN	Simulation Network News
SOC	Special Operations Command
SOCCE	Special Operations Command and Control Element
SOF	Special Operations Forces
SOJ	Standoff Jammers
SOLE	Special Operations Liaison Element
SOP	Standard Operating Procedure
SOTVS	Special Operations Tactical Video System
SPJ	Self-Protection Jammers
SPOD	Sea Port of Debarkation
SPOD	SeaPort of Debarkation
SPOE	SeaPort of Embarkation
SPOTREP	Spot Report
SRC	Standard Requirement Code
SRD	Standard Requirement Document
SSE	Space Support Element
SSET	Space Support Element Toolset
SSM	Surface to Surface Missile
SSP	System Support Package
STAMIS	Standard Army Management Information System
STAMPS	Stand Alone Message Processing System
STAR	System Threat Assessment Report
STOL	Short Takeoff and Landing
STOM	Ship-to-Objective Maneuver
STRAP	System Training Plans
STRED	Standard Tactical Receive Equipment Display

STRICOM	Simulation, Training, and Instrumentation Command
STRICOM	Simulations, Training, and Instrumentation Command
STRIKWARN	Strike Warning
STX	Situational Training Exercise
SUAV	Small Unmanned Aerial Vehicle
SUV	Staff Utility Vehicle
SV	Systems (Architecture) View
SV-1	Systems Interface Description
SV-2	Systems Communication Description
SV-3	Systems to Systems Matrix
SV-4	Systems Functionality Description
SV-5	Operational Activity to System Function Traceability Matrix
SV-6	System Information Exchange Matrix
SYSCON	Systems Control

T

TA	Technical Architecture
TAADS-R	The Army Authorization Documents System Redesign
TACAIR	Tactical Air
TACCSF	Theater Air Command and Control Simulation Facility
TACELINT	Tactical Electronic Intelligence
TACFIRE	Tactical Fire Direction System
TACINTEL	Tactical Intelligence
TACON	Tactical Control
TACP	Tactical Air Control Party
TACREP	Tactical Report
TACS	Tactical Air Control System/Theater Air Control System
TACSAT	Tactical Satellite Terminal
TADIL	Tactical Digital Interface Link
TADSS	Training Aids, Devices, Simulators, and Simulations
TAI	Target Area of Interest
TAIS	Tactical Airspace Integration System

TALO	Theater Airlift Liaison Officer
TAMD	Theater Air and Missile Defense
TAME	TRADOC Architecture Management Element
TAOC	Tactical Air Operations Center
TAOM	Tactical Air Operations Module
TARIP	TRADOC Architecture Redesign and Integration Plan
TARN	Tactical Air Request Net
TAS	Target Acquisition Center
TAV	Total Asset Visibility
TBA	Theater Battle Arena
TBD	To Be Determined
TBM	Theater Ballistic Missiles
TBMCS	Theater Battle Management Core System
TBMD	Theater Ballistic Missile Defense
TCC	Test Control Center
TCO	Tactical Combat Operations
TCP	Transformation Campaign Plan
TCS	Theater Communication System
TCT	Time Critical Targeting
TDA	Table of Distribution and Allowances
TDDS	TRE/TRAP Data Dissemination System
TEL	Transporter, Erector, Launchers
TEMP	Test and Evaluation Master Plan
TENCAP	Tactical Exploitation of National Capabilities Program
TEP	Theater Engagement Plan
TES	Tactical Exploitation System
TES-N	Tactical Exploitation System - Naval
TEXCOM	Test and Experimentation Command
TF XXI	Task Force XXI
TFCICA	Task Force Counterintelligence Coordinating Agency
THAAD	Theater High Altitude Area Defense
TG	Tactical Guard

TIBS	Tactical Information Broadcast Service
TIP	Tent Interface Panel
TIRT	Tactical Imagery Rendering Tool
TIU/PC	TIBS Interface Unit/Personal Computer
TLAM	Tomahawk Land Attack Missile
TM	Test Manager
TMD	Theater Missile Defense
TNET	Tele-Training Networking
TOC	Tactical Operations Center
TOE	Table of Organization and Equipment
TPFDD	Time Phased Force Deployment Data
TPFDL	Time Phased Forces Deployment List
TPIO	TRADOC Product Integration Office
TPN	Tactical Packet Network
TPS-75	Air Defense radar (USAF)
TQM	Total Quality Management
TR	Trouble Report
TRAC	TRADOC Analysis Center
TRAP	TRE and Related Applications
TRADOC	Training and Doctrine Command
TRE	Tactical Receiving Equipment
TSC	Test Support Center
TSIU	Tactical Simulation Interface Unit
TSM	TRADOC Systems Managers
TSEC	Transmission Security
TST	Time Sensitive Target
TT	Thread Test
TTP	Tactics, Techniques, and Procedures
TTSP	Training Test Support Package
TUAV	Tactical Unmanned Aerial Vehicle
TV	Technical Architecture (view) Technical Verification
TV-1	Technical Architecture Profile
TWS	Tactical Weather System

U

UofA	Unit of Action
UAV	Unmanned Aerial Vehicle
UAVSIM	Unmanned Aerial Vehicle Simulation
UCP	Unified Command Plan
UDP	User Diagram Protocol
UFD	User Functional Description
UGS	Unattended Ground Sensor
UHF	Ultra High Frequency
UIR	User Interface Requirement
UJTL	Universal Joint Task List
UMS	Unattended MASINT Sensor
UPS	Uninterrupted Power Supply
URL	Universal Resource Locator
URS	Unit Reference Sheet
USAFMSA	U. S. Army Force Management Support Agency
USAID	United States Agency for Internal Development
USF	Unit Set Fielding
USJFCOM	U.S. Joint Forces Command
USMTF	U.S. Message Text Format
UTO	Unit Task Organization
UTR	Unit Task Organization Registry

V

V&V	Verification and Validation
V2E	Version 2 Enhanced (Hardware)
VDD	Version Description Document
VHF	Very High Frequency
VHSIC	Very High Speed Integrated Circuits
VIEW	Virtual Interactive Environment Worldspace
VIS	Vehicular Intercommunications System
VLAN	Virtual Local Area Network

VLF	Very Low Frequency
VPN	Virtual Private Network
VSTARS	Virtual JSTARS
VT	Vignette Test
VTC	Video Teleconference
VV&A	Verification, Validation and Accreditation

W

WWW	World Wide Web
WAM	Wide Area Munitions
WAN	Wide Area Network
WARNO	Warning Order
WARSIM	Warfighter's Simulation
WE	Warfighting Experiment
WFLS	Warfighting Lens Analysis
WG	Work Group
WIGS	Warfare Information Grid System
WIN	Warfighter Information Network
WIN-T	Warfighter Information Network – Terrestrial
WIN-T	Warfighter Information Network – Tactical
WLAN	Wireless Local Area Network
WMD	Weapons of Mass Destruction
WME	Weapons of Mass Effect
WOC	Wing Operations Center
WRM	War Reserve Material
WS	Work Station or Workstation
WX	Weather